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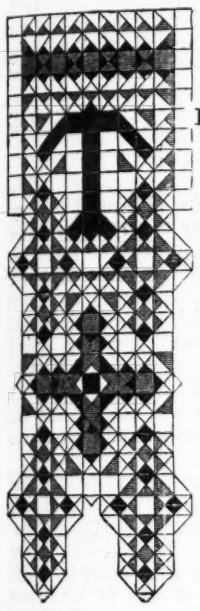
ILLUSTRATIONS.

London and County Bank, Pentonville-road, King's Cross.—Messrs. Glover & Salter, Architects 510
Sedilia, Wymondham Church, Norfolk 512
Wadhurst Park, Sussex, the Seat of Mr. C. de Murieta (Plans, p. 521) 514
Design for Interior Decoration: Hall and Staircase.—Mr. Edwin William Poley, A.R.I.B.A., Architect 516, 517
Details of American Construction. No. V.—Communicated by Mr. A. J. Gale, A.R.I.B.A. 523

CONTENTS.

The Work of the Architect viewed in relation to the Death-rate 501
Military Architecture 502
Notes 503
The Decorative Uses of Metals 504
Further Evidence on the Parisian Building Trades 506
Two Old Thames Bridges: Putney and Battersea 506
The New Science and Art Museum for Dublin 507
Further Notes as to the Housing of the Poor 508
Sedilia, Wymondham 508
Wadhurst Park, Sussex 508
London and County Bank, King's Cross 508
Hall and Staircase Decoration 525
Details of American Construction 525
Architectural Association: Visit to the New Congregational Church, Hampstead 525
The Antiquities of Wisby 525
The Schauspielhaus at Berlin 525
The New West Doorway of St. Giles's Cathedral 525
The Institution of Civil Engineers 525
Edinburgh Architectural Association 525
International Health Exhibition 526
Proposed Health Conference 526
"A System of National Water Regulation" 527
The Sanitary Inspection of Dwellings 527
Admiralty and War Offices Competition 528
Constitutional Club 528
"Ancient Lights" 528
Royal Institute of British Architects 528
Standard Theatre 528
Unapproved Designs 528
Keeping Notes 528
Ants in Houses 528
A Caution to Builders 528
Paving Apportionments: Wilkinson *v.* Coliyer 528
Provincial News 529
Church-Building News 529
Stained Glass 529
Building Patent Record 529
Meetings 530
Yorkshire Association of Medical Officers of Health 530
Miscellanea 530



The Work of the Architect viewed in relation to the Death-rate.

THE subject of the close connexion that exists between the work of the architect and the public (or, rather, the local) health of the districts in which his services are required, is one of extreme interest to the profession. We are not speaking of sanitary measures, properly so called, or of that unseen subterranean portion of the work of construction which silently but forcibly tells its own story. We refer to the modification which may be produced in the death-rate of a district by quantity, rather than by quality, of accommodation. The lofty structures which are now thickening in every panoramic view of London may be admirable in design, thorough in execution, and duly furnished with means for that inflow and outflow of water on which, under existing arrangements, the public health so closely depends. Such buildings we are apt to regard as unquestionable improvements to a neighbourhood. But, on the other hand, we wish to point out, and that not as matter of theory alone, but as tested, as far as is at the moment practicable, by statistics, that the addition of a second, third, or fourth plane of habitation, by rearing story above story, tends so seriously to increase the density of population within a given area, as to exert an unfavourable effect on health. It is as to this influence of density of population on health that we are desirous of inquiring whether we can attain any results that may be of service to the architectural profession. For such results to have much definite value, it will not be denied, they must have some degree of precision. The general theory will, of course, be admitted. But that is little to the point unless we can find some method of assigning a numeric value to the evil caused by density.

That a general increase of death-rate accompanies an increase in density of population there is no manner of doubt. But any attempt to measure this increase is attended with the difficulty that always opposes the determination of two or three concurrent values at the same time. As a rule, human life may be taken to be increasing in duration in this country. Much is being done, in very different ways, to secure this end. The habits of the people, the abodes of the people, the physiological and medical knowledge of the advisers of the sick and ailing,—all these are undergoing change, and change for the most part probably of a beneficial character. Thus, if in a given locality there has been a concurrent increase in density of population and in the application of the best methods of sanitary improvement, the movement of the death-rate or disease-rate will be the resultant of three or four causes; nor will it be easy to assign to each one of them its true value.

Again, independently of change there are local values that have to be taken into account. Level is one of these. Level generally has a direct effect on drainage, and thus on health. Thus, in two districts alike in other respects, with the same soil, the same class of buildings, and the same density of population, it may chance that the level of the one may allow of an automatic drainage which is impossible in the other. This difference will tell on the measures of health.

Thus comparing the contiguous districts of St. James, Westminster, and St. Margaret, Westminster (according to data collected in 1871), the density of the population of the former parish was between three and four times as great as that of the latter. The expanse of the park, and the palatial character of some of the residences, in the more sparsely-peopled district, would seem to indicate it as by far the preferable parish. And yet the death-rate in St. Margaret's was 12 per cent. higher than that in St. James's. The denser neighbourhood was more healthy than the less populous and more open district. Why was this? The determination of the level answers the question. The greater part of the parish of St. Margaret is below the 10 ft. contour line. The whole of it is below the 20 ft. contour line. The surface of the parish of St. James rises from the 10 ft. or 20 ft. contours to the 60 ft. and 70 ft. contour lines. Thus whatever be the attention given, in either parish, to the vital question of drainage, the natural advantage of the higher region is so great in this respect as not only to make up for the greater density, but to reverse that sanitary relation which, apart from this condition of level, might have been fully expected to prevail.

Bearing in mind, then, the existence of those local peculiarities which have so powerful an influence, and which, in any sanitary investigation, demand independent determination, we require much and patient toil to arrive at the true co-efficient of density, as affecting health and life. In attempting even an approximate determination, we admit the existence of grave sources of error. That, however, borne in mind, a comparison of the density and of the death-rate of various districts of town and country gives an approximate rule, which may be suggested to the architect rather for comparison and for correction than for his absolute guidance. But it is at all events near enough to show how necessary it is to carefully consider the effect that will be produced on the salubrity of a district by any great increase in the density of its population, or in the average height of its buildings.

It is difficult to determine the starting-point for comparison. The followers of Mr. George, and the believers in the wonders to be wrought by *la petite culture* and peasant proprietorship, ask, we think, for the allowance of four acres per head of population. Those who desire to arrive at such a result must go to Scotland, where, in 1881, there was a proportion of rather more than five acres to each person. But what was the quality of the land? How much barren heath and mountain is indicated by so low a rate of population? In the United Kingdom the proportion sinks to less than $2\frac{1}{2}$ acres per unit; in England and Wales to less than $1\frac{3}{4}$ acre; in England alone to less than $1\frac{1}{2}$ acre; and so on, till we come to those districts of London that pile more than 200 inhabitants on an acre.

In a desert, of course, there is no death-rate. But it does not follow that one inhabitant per square mile, or even per acre, is the most healthy ratio of population. To a great extent the mutual aid afforded by neighbourship will make an increase of population, up to a certain point, a gain. The question is, where is that point? In the inquiries before referred to, as made in 1871, the healthiest district in England was Bellingham, in Northumberland. The density of population was only one to $33\frac{1}{3}$ acres; and the death-rate was 14, the average death-rate for England for the same year being 22. If we take this low rate for a starting-point, the average-death rate for England was as 1·75, the rate for the most healthy district being 1.

This great healthiness, however, is exceptional. Northumberland is the healthiest of English counties, but high level, pure water, and invigorating breezes go probably for as much as density of population. Although the general death-rate is raised by the heavy figure of 27 for Newcastle-on-Tyne, it was as low for the whole county, for the year in question, as 18, and the average density for the county was one inhabitant to every $3\frac{1}{2}$ acres.

But even if we take the areas given by the Registrar-General, and, comparing them with the annual returns of population, arrive at a density rate per district which we can put in a parallel column to the death-rate, we have only rough material to deal with. It is

obvious that if we take a given circle, and a given population, the effect of density of population may still be very seriously varied. We should suppose, for instance, that such a distribution as would give an equable density over the whole area, which is the result of the simple comparison of the two figures given, would be by a long way the most favourable that could be made. But in point of fact we rarely or never find such an equable distribution. We find certain parts of the area in which greater numbers are concentrated, while the population in other parts is comparatively sparse. But the concentration is likely to have a far more injurious effect on health than the more sparing distribution can counteract. This distribution is everywhere different. The value can only be determined by a far more minute and accurate distribution of returns than we possess, or than we are likely, — except in rare cases, — to acquire. Thus we may ask in vain what is the density, and what the rarity, of the most and of the least thickly peopled part of the above-cited district of Bellingham. And even the fearful numbers per acre in the London district of St. Giles's must fail very far to give an indication of the greatest density of its most crowded streets and courts.

Again, there is an annual variation, which may be advantageously represented to the eye by the graphic method of a curve. The death-rate of London is now as low as 21·4 per 1,000, having been reduced from 24·8 for the decade ending 1850, to 22·5 for that ending 1880. But can we hope that this represents a permanent gain? To some extent, perhaps, we may do so, as Sir J. Bazalgette has pointed out that by the combined action of the water-supply and the main drainage a true sanitary improvement has certainly been effected within the last ten years. But if we go back before that date, and examine the curve that may be plotted from 1840 to 1869, we do not see much sign of steady amelioration. The death-rate in 1840 was 24·98 ; in 1869 it was 24·63. The healthiest year in the interval was 1857, when the rate sank to 22·41. The worst year was 1849, when it rose to 30·14. This range of thirty-four per cent. within eight years is about half of that recorded, in any one year, between the most healthy and the least healthy district of London itself. This, in 1869, was from 17·0 in the Hampstead district, to 29·0 in St. George's-in-the-East, being a difference of 70 per cent. As far as the comparison may be taken for a guide, then, the influence of season on the death-rate may be taken as about half as powerful as that which is exerted by the mean difference of the combined local causes affecting the death-rate of any specified district.

On the above data we shall probably be not far wide of the mark if we consider that drainage (as measured in the remarkable case of the Westminster parishes, by level) has the greatest influence of any determinable cause on local death-rate. Second, when a certain density is once obtained, comes density of population. Third is what we may term the medical health co-efficient of the year. And it is, at all events, certain that the first and the third of these causes will require very careful observation in any attempt that may be made towards the independent determination of the second.

Thus much premised, it may be suggested, not as a matter of dogmatic certitude, but by way of hypothesis, to be tested by the observations of statisticians, when the proper corrections are applied, that an increased density of about ten persons per acre may be expected to produce an increase of one per 1,000 in the death-rate. Thus, the death-rate of London for 1883, according to Sir J. W. Bazalgette, was 21·4. The mean density over the area of the metropolitan water companies' district in that year was 64 persons per acre. The density of the population of Paris at the same time is given by the same authority in figures equal to 111 persons per acre. The difference in the death-rate, according to the rule just suggested, would be 4·7, making the death-rate to be expected for Paris, 26·3. The actual death-rate for the year is given by Sir J. W. Bazalgette as 26·3, the identical figures.

Such an exact coincidence, however, we take to be, to some extent, fortuitous. Nevertheless it is a simple comparison over a large area. Within London itself we do not find the change of rate to be so serious, but that must, in some measure, be due to the consideration of level. Thus the density of St. Giles, in 1869, was 220 persons per acre, or one inhabitant to every 22 yards of area. The density of London in that year was 36 persons per acre, and, the mean death-rate being 24 per 1,000, the expected death-rate of St. Giles's district, according to the rule under discussion, would be 42·4. It was, however, only 28 ; but, on turning to the contour map, it will be seen that the district in question is situated on the 60 ft. and 70 ft. contours, and the advantage of 14·4 per 1,000 over the theoretical expectation of death-rate is thus, to some degree, accounted for, as well as by the fact that there is only one hospital in the district.

Again, in the same year, the death-rate of the united parishes of St. Saviour and St. Olave, Southwark, was 29, the highest of any London district. The density of population was 131 persons per acre, or 89 fewer than in St. Giles's ; but the entire district is situated below the 10 ft. contour, and is thus not only water-logged, but subject to inundation. Thus, a difference of 1 per 1,000 in the death-rate against the low-lying district, while the density-rate ought, on the foregoing hypothesis, to give 8·9 per 1,000 in its favour, can hardly be dissociated in the mind of the inquirer from the fatal humidity of the soil and the difference of some 60 ft. in level.

Hampstead, it may be added, was the healthiest London district during the period under examination. But here we have the two causes of health,—elevation of level and rarity of population acting in the same direction. The district lies from 120 ft. to 240 ft. above Trinity high-water mark. The density of population was under 9 persons per acre ; the death-rate was 17 per 1,000. As to the annual curve, the London death-rate for 1869 was only 0·28 per 1,000 above the mean for the preceding 30 years.

The above important facts are offered, together with the rough rule hypothetically arrived at, for the consideration of those who may be prepared to think out the matter further. In indicating the two disturbing causes of the annual curve, and the influence of level, we only point to two out of numerous causes of variation that will have ultimately to be valued. But, as far as we can see, they are the two most important causes that modify the effect of density. And it must be remembered that the question of level may not depend on subsoil drainage alone, direct as we know the influence of the condition of the subsoil to be in many diseases, notably in phthisis. The effect of the elasticity of the air is not to be ignored. And the physical, or electric, influence of the geological nature of the soil on health is at the same time admitted in principle, and unstudied, as yet, in detail.

The adverse influence of density of population, whether measured by the suggested modulus of 1 per 1,000 for every ten additional units per cent., or in any other way, is a subject that demands the careful attention of all persons interested in building, and that more especially at the present time, when the question of the housing of the poor is under investigation. The density of population in London is kept down by the small size of our houses. The comparison of the numbers of 64 persons per acre in London with 111 per acre in Paris, when coupled with the fact of the greater height of the houses in the latter city, where it is not so very uncommon to have to climb *au huitième*, is a clear proof of this. While in London we find 7·4 persons per house, in Paris we have 29. Now any serious attempt to utilise the costly ground area of Inner London to the highest extent in providing room for habitations will naturally lead to the introduction of a style of building somewhat resembling that of the great monasteries of Italy. Floor above floor rise small cells, connected with long corridors and outer staircases ; and the accommodation for numbers on a small area that can thus be attained is such as to make the St. Giles's rate of 220 persons to the acre appear liberal. It may be all very well to pile such a building on a mountain, where the free air can sweep in from all around. In a city it is another matter. And we hope we have said enough to show that the addition of any new plane of abode, or story of building, in London, must be attended, other things being equal, with a proportionate increase of the death-rate, which, even if we cannot at present exactly determine it, may show, too late, that we have been unwise to disregard the danger.

MILITARY ARCHITECTURE.*

MILITARY architecture, as a living art, has long ceased to exist.

Buildings which differ in no material respect from their civilian counterparts are, of course, erected for the convenience of the military service,—barracks, hospitals, schools, and such like, more varied and numerous than ever. But these examples of architecture for the military are not military architecture, which is, properly speaking, the architecture of defensive structures. There was once such an architecture in Europe : for a thousand years it ran its triumphant course, to disappear before the re-adoption of the oldest of all forms of defence,—the simple ditch and earthen mound. The engineer no longer rears broad fronts of masonry scarps or builds the lofty tower for guard and outlook. His art is no longer to resist his enemy by sullen masses of inert masonry, defying escalade, and strong enough to "laugh a siege to scorn." He delays his foe by sunken obstacles and destroys him unseen from behind a secure cover of earthen rampart. The rifle and the spade are henceforth to be the soldier's twin weapons of offence and defence, and the Moncrieff pit is the modern antithesis of the Norman keep.

Every step in the long progress from the simple enclosing hedge or palisade of the unsophisticated Briton to the scientific dispositions of Vauban, is easily traceable in our national examples. The only point in which our British precursors appear to have been equal to their descendants is in the selection of defensible sites, which were always chosen with unerring instinct.

The distinctively national phase of the art of architecture as applied to the science of defence synchronises exactly with its employment for ecclesiastical and civil purposes. "With the exception of a fragment of wall at Corfe it is doubtful whether any military masonry older than the Conquest exists in England," and certainly none bearing the impress of art is of later date than Henry VIII. The Norman William built fewer castles in this country than he is generally credited with. At the termination of his reign those erected by himself and his numerous barons did not, probably, exceed in number a hundred. But, looking to their vast extent, to the prodigious masses of masonry involved in their construction, the distances which much of the material had of necessity to be bought, and the number of artificers required ; considering, too, the immense number of monastic and ecclesiastical establishments which date from his reign, even this number cannot fail to strike us with surprise. He found the main lines of approach to the interior of the kingdom and all its vulnerable points defended by earthworks, and these he repaired, enlarged, and strengthened, and with these he was, for the most part, content ; adding here and there a keep, and "making the most of what had fallen into his hands." It is to Henry I. that the great number of English castles owed their origin or completion ; and Henry II. scattered them over his dominions with so liberal a hand that by the end of his reign, notwithstanding the destruction of those edifices which were considered inimical to the interests of the Crown, no fewer than 650 castles and military works remained intact and serviceable for warlike need. The type of Mediæval stronghold was fixed during his reign, and with it closed

* "Mediæval Military Architecture in England." By Geo. T. Clark. London : Wyman & Sons.

the great castle-building era in England. That type is familiar to every Englishman, for it is seen in every district in the kingdom. The long lines of *enceinte* embattled at their summits and flanked by frequent towers, the broad and deep ditch in front crossed by a drawbridge, defended in its turn by a machicolated gateway with its own system of flanking turrets; and, towering high above all, the monstrous keep, "four square to all the winds that blow," itself a complete work of defence for reliance in the last extremity of disaster. These, in various degrees of decay and decrepitude, are known to all. The arrangements adopted in each case, though conforming to a settled principle, were infinitely varied in their application;—when a new site was chosen, and the foundation was secure, the keep was built as a tower, accommodating on its several floors prisons, storehouses, guard-room, hall, and chapel, and, most precious of all, enclosing the well. This was never omitted, at whatever cost. At Bamborough, one of the most remarkable early wells in the country is found carried down 145 ft. into the whinstone rock,—a work which may well astonish us, and which would give us some trouble even now with all our modern "appliances and means to boot." When the mound upon which every castle stood was artificially formed, the "shell" or hollow keep was adopted,—a little work within a larger one. In the thirteenth century a cylindrical form of keep became fashionable, but it was not, in some respects, so efficient as the square form: its divergent fire from the parapets was not so well calculated to defend its base as the converging fire its predecessor afforded, and many expedients were necessary to restore the balance. A movable *brétache* was erected in times of siege, and some other complicated forms of counter attack were devised. In all these works the hand of the artist appears somewhere. In the entrance-gateway, the doorway to the keep; in the chamber, or oratory, or chapel, the best art of the period is invariably apparent, and lends a grace where all else is gloomy and severe. It is only when we arrive at very late examples that we meet with instances of silly subterfuge and execrable taste. The military architects of the Middle Ages were the equals of the architects of the cathedrals which adorn our land,—if, indeed, the architects of both classes of works were not the same men. In the latter part of the reign of Henry III. the ordinary dwelling-house put on something of a defensive character. It was embattled and moated, and defended by a drawbridge and portcullis,—the licence to fortify such houses forming an important adjunct to the royal revenue. It is probable that outer stockades and perishable elements of defence were also employed. But soon the hopelessness of holding out against the attacks of artillery, and a growing desire for "liberty and light," changed the aspect of such houses. Windows were opened through their enclosing walls, and the architecture of defence was adopted more as a fashion than for its serviceableness against anything but the desultory assaults of predatory vagabonds, or the undisciplined and unfurnished mob. In the sixteenth century the Englishman's house ceased to be, in a literal sense, his castle, and a new type of nobles' residence arose. With the decay of the defence of isolated houses remained, however, the defence of towns, and there is a nobility about the long indented lines of scarp which, until the other day, girdled in many of our important cities. The few survivors are disappearing or are doomed to disappear. The towns they once enclosed have overflowed their bounds, and the old line of ramparts is succeeded by detached earthen forts, scarcely distinguishable from the upland meadows from which they rise like great ant-hills, a couple of miles away. Henry VIII. was a determined fortifier, and to him many of these old lines are due. He also lined our southern coast with castles,—at Deal, at Walmer, Sandgate, and other points. Charles I. shared his views, and added to the fortifications at Sheerness, Chatham, and other places of importance to our shipping, and the very last appearance of the military architect was seen in the chain of martello towers which, dating from the very beginning of the century, dot the curving beaches of our Channel coast.

From time to time exact and interesting accounts of the remains of the Mediæval military architecture which are scattered throughout the land have been contributed to our own pages by a skilful hand,—that of the author of the work which suggests these reflections. The student who would get at the full lesson which these remains convey must possess many qualifications. He must have a close acquaintance with the by-paths of European history. He must be in a wide sese an antiquary and an archæologist. He must have sufficient acquaintance with the niceties of architectural detail to avail himself of the clue which this gives in determining a date, and he must add to the most patient investigation the power of generalising soundly from a multitude of facts. He must, moreover, have abundant leisure, and be quite independent of the prospects of any pecuniary reward for his protracted labours. It is probable that there are not half a dozen men in England who are in every point fully equipped for the study and exposition of our ancient military architecture. It is certain that no one could be found more competent than the author of the two handsome volumes before us.

In a preliminary introduction,—which extends to 172 octavo pages,—he gives a succinct account of the rise and development of military architecture in England, tracing with unique skill the *rationale* of the art, and following its most recondite ramifications.

Following thereon is a detailed account of almost every considerable example of the art now extant, illustrated by plans, and sometimes by elevations, sections, and details. The Tower of London is treated at great length in a reprint of the writer's well-known and masterly monograph; and such noble examples as Caerphilly, Berkeley, Alnwick, Arundel, and others are examined and elucidated in the most thorough manner. A few curious but unimportant verbal errors have crept into the text, puzzling at first to the architectural reader. In a new edition the whole should be carefully revised in this respect; and as some of the articles are half a century old, they should be either brought up to date, or dated.

In taking leave of one the most interesting works which have lately come before us, we cannot refrain from expressing a regret that it is not illustrated by a good map showing the general defensive scheme of the Norman engineers, and the positions of the several works erected or projected by them to guard the main lines of road and river. Such a map of the Scottish border and of the Welsh marches would be of great interest, and by the clue thus afforded many a landowner might yet discover some of the undiscovered works to which either tradition or written records point. It would add a special value to a book which wants only this and an index to be as near perfection as possible.

NOTES.

Sir William Harcourt's able speech on Tuesday night, in introducing his Government of London Bill, will probably do much to prepare the Bill for its successful passage through the usually troubled waters of a second reading. That it will be subject to much criticism we cannot doubt; but we think every impartial mind will recognise the general moderation of Sir W. Harcourt's proposals, and the logical spirit in which they were worked out. Sir William based his argument for centralising and combining the governing authority partly on the extent of work which had been carried out by the Metropolitan Board of Works, who to some extent, and in regard to some subjects, represented a kind of central authority such as the Bill proposes to establish for all matters with which local government ought to deal; and he pointed out that when there was work to be done which might be done either by one of the various vestries or by this single body, the Board of Works, it had almost invariably been given to the single body. The first reading passed without discussion. Every one will look with interest to the second reading; but we can hardly prophesy other than success to a scheme which promises to put new life into London government, to secure us against the partial and often conflicting action of vestries, with their petty interests, and which will, we hope, inaugurate a more high-minded and truly public spirit than we see at present in either the Corporation of London or the Board of Works, both of which display in their motives and methods but too much of the essential spirit of vestry-dom.

The last number of the *Journal* of the Society of Arts contains a report of a paper read on Wednesday, the 2nd, by Mr. Elijah Hoole on the "Dwellings of the Poor," portions of which go to confirm what is remarked elsewhere in our present number, that much of the difficulty of comfortably and decently housing the very poor arises from the ways and habits of the people themselves. Mr. Hoole is in favour, as others have been before him, of recognising the absolute necessity for a certain proportion of single-room tenements for those who cannot afford to pay a remunerative rent for anything more, but then he would have the rooms planned and constructed for the purpose, and the occupants looked after and kept in order. This latter side of the requirements seems to be very unpopular with those for whose real benefit it is intended. A speaker in the discussion that followed the paper gave a melancholy account of his own experience in dwelling accommodation:—

"He said he lived in a court near Drury-lane; in a house not a brick of which was sound, and portions of which were absolutely fastened together with floorcloth, but which produced nearly 156*l.* a-year. For the wretched room in which he and his son lived, in which there was hardly room to turn, he had to pay 4s. a-week. He denounced the notion that this state of things could be remedied by charity or philanthropy, and said that if he could afford the rent asked in the model lodging-houses, he would not consent to live there subject to the restrictions which were imposed. He maintained that dwellings could be erected far more economically, which might be let at 1s. per week per room."

This speaker was very probably one of the few who would be disposed to make the best uses of such accommodation, but there are many who could not. An East-end clergyman the other day had an offer from a benevolent lady in the west to provide screens to separate the sexes in one-room houses, and to send down as many as were asked for, at her own expense. "Why," was the clergyman's comment, "the screens could in nine cases out of ten be sold the next day for what they would fetch as material!"

The subject of the Wellington statues, old and new, existent and possible, came up again in Parliament on the 4th inst., when Mr. Rylands asked if it was still the intention of the Government to abide by the decision announced on the 9th of August last, to invite a competition of sculptors for a new statue of the Duke; and the irrepressible Mr. Cavendish Bentinck put to the First Commissioner a string of interrogatories, including the query whether a commission for a new statue was to be given to "a foreign artist," and whether there was no native British artist to whom this "national work" could be entrusted. The reply on these heads was that the idea of a competition had been abandoned, partly because it was understood that "the leading sculptors would not compete" (no wonder, after the results of some recent sculpture competitions!), and that Mr. Boehm had been selected by the Committee to execute the new statue. Of course, as Mr. Shaw-Lefevre hinted, it would be absurd to object against Mr. Boehm as a "foreign" artist, since he has been elected a member of our own Academy; even if the rule of "English artists for English work" were to be regarded as *de rigueur*, which we doubt. But Mr. Boehm may certainly be said to be a very fortunate sculptor; and, perhaps, it was a tacit feeling that, considering the constitution of the Committee, the result was likely to be just the same whether they competed or not, which induced the disinclina-

tion on the part of other sculptors to sacrifice their time on what was likely to prove only a perfunctory contest.

WE have received from the Association of Public Sanitary Inspectors a copy of a paper read on the 5th inst. by Mr. Thos. Rees, rural inspector of nuisances at Guildford on the Public Health Act of 1875, considered mainly from a rural inspector's point of view. Mr. Rees urges that the provisions of the Act that are now applicable only to Urban sanitary authorities should be made compulsory for the whole kingdom. "If the law had been made to apply equally to Urban and Rural districts, as now understood," says Mr. Rees, "many a rookery would never have been built, and houses would not have been erected as they now are, to the great disgust and sorrow of many a local authority. I know a place whereon nineteen cottages are built, and some being built on a piece of land whereon, in an urban district, three only would have been allowed to be built." Mr. Rees supports Mr. Monckton's Bill, now before Parliament, whereby he hopes that more extended and irresponsible power will be given to the sanitary inspector, or, rather, that he will be made responsible to a central authority, and put above the influence of those to whom the recommendations he would be glad to make are unwelcome as contrary to their own interests. The paper concludes with a good many detailed suggestions for amendments to various clauses of the Act as at present existing, which seem to be conceived in a practical and sensible spirit.

THOSE who have hitherto had no idea of the way in which a very large section of our poor live, have it vividly brought before them in a recent work on the canal-boat population by that well-known philanthropist, Mr. George Smith, of Coalville. It is a fearful thing to have the fact brought before us that a rising generation of over 30,000 young children are being brought or dragged up in dwellings the sole living-room of which has an area of 6 ft. square. How can the simplest elements of morality be carried out under conditions such as have been brought before those who have investigated the facts, where a dozen or so of adults and children are huddled together in one diminutive cabin? To counteract the evil effects of this life the Canal Boats Act Amendment Bill, which is endorsed by Mr. Burt, Colonel Makins, Mr. Samuel Morley, Mr. Pell, and Mr. Broadhurst, has been introduced, and it is hoped that, even in the present chaotic condition of Parliament, so short but so important an Act may be got through.

A MEMORIAL is to be presented from the Society of Antiquaries of Scotland to Mr. Gladstone, praying that the usage of the ancient hall of Edinburgh Castle as a military hospital should be discontinued, and that the hall should be "restored" to its pristine condition. The military authorities are understood to have come to the conclusion that the building is unsuitable for the purpose for which it is being used; and its abandonment for that purpose would furnish opportunity for removing the floors and partitions with which it has been cut up for practical purposes. It is suggested that there will be sufficient remaining of all the details to afford means for restoring the whole. This, however, need not, we presume, be looked upon as an inevitable consequence of the clearing out of the hospital and the structural additions in connexion with it. The mere removal of these additions, leaving the ancient work as it stands, might be a practicable method of proceeding, and meet the feelings of those who have begun to find that the interest of restored buildings has palled upon them. The Society for the Protection of Ancient Buildings will, no doubt, be prepared to take reverential measurements of the floors and partition-walls before they are removed, so as to preserve the memory of them to posterity.

WHILE the inhabitants of the Holborn District are to be congratulated on the recent completion of the widening of Gray's Inn-road, they and their neighbours of Clerkenwell and Islington will do well to leave no stone unturned until they succeed in getting the Metropolitan Board of Works (or the new Municipality for London) to carry out an improvement which has long been demanded by public necessity and safety. We allude to the construction of a new street from the corner of Gray's Inn-road and Clerkenwell-road to the vicinity of the Angel at Islington, to accommodate the yearly increasing traffic between Holborn and Islington, which has no alternative but to make a long *détour* or to go *viâ* the present constricted Elm-street and the hilly Mount Pleasant,—a most dangerous and awkward route, the so-called "Mount Pleasant" being another and only a slightly mitigated version of Holborn-hill and Snow-hill before the Viaduct was built. We note that at the last meeting of the Metropolitan Board of Works a large deputation from the localities interested attended in support of a memorial from the local authorities asking the Board to obtain power from Parliament to effect the improvement. We believe the Board are not unwilling to carry out the improvement; in fact, it has been included in at least one of their Parliamentary Bills, but abandoned in favour of projects that were deemed to be more urgent.

ON Tuesday, the annual Loan Exhibition, as it has now become, was opened in St. Jude's Schools at Whitechapel. Since Mr. Barnett, the vicar, four years ago hit on the happy idea of utilising the empty school-rooms, during the Easter holidays, for exhibiting pictures by high-class artists to those who seldom have a chance of seeing good pictures, these exhibitions have been a continued success, and have been visited by crowds of people every Easter. The present exhibition contains works by Messrs. Millais, Watts, Boughton, Briton Riviere, &c., and among deceased artists Poole and Constable are represented. We can only regret that Mr. Barnett could not be satisfied with letting people become acquainted with art as art, instead of inviting Mr. William Morris down to dole out to the people crude and Utopian nonsense about the connexion of art with Socialism, and to make statements to them which are absolutely in contradiction to historical fact. Artistic greatness, and artistic inspiration of the higher order, have never in the past had any necessary connexion with social equality or the rights of labour. The impartial analysis of the state of art and society at the Renaissance period would, in fact, almost lead to the opposite conclusion; and to tell people that art could only exist at all so long as it was art for the many, and that it was a question between that and no art at all, is simply to "say the thing which is not."

WE commend to the notice of the minority who can take in more than one side of life, a little book on "Express Trains,"* by Mr. Foxwell, which appears to be an expansion of two papers which had previously appeared in certain periodicals. The remarkable point about the book is that the writer appreciates equally both the statistical and the romantic side of railway travelling, and, with the exception of a little too great exuberance of diction in regard to the last-named side of his subject, treats them equally well. The statistical paper is valuable as giving the records and the meaning of railway statistics as to speed and other conditions on various lines, in such a manner as to be really readable and interesting to the general public, who may learn from these papers something more than most of them know at present as to the methods and working of our splendid railway system, which in most points has not its equal in the world, and in regard to which the hundreds of thousands who make use of it are, for the most part, deplorably ignorant. The writer shows, too, how the railway system throws light on national and local character. "The energy with which our trains are managed" is shown by comparison of the work of an ordinary long-distance express in England, a heavy train carrying all classes, with the very best long-distance express in France (Paris to Marseilles), a light train of first-class only, but which is below the speed of our ordinary express. Other statistics show that south of the Thames people pay nearly double what they pay north of it, for inferior train services: "the North of England towns would not submit to these services, but the crowds of individuals who breathe London air seem incapable of that joint energy which in other localities would soon put an end to such grievances." In speaking of the poetic side of railway travelling Mr. Foxwell rises to enthusiasm, which those who understand most of the subject will be the last to think exaggerated. An express train is as good as a Beethoven symphony; indeed, to him "Bradshaw is the score of a symphony that goes on day and night." Those who remember "the Scotchman" at York in the icy winter of 1879-80, "when the few travellers who were not thawing themselves at waiting-room fires used to stamp up and down a sawdusted platform under a darkened roof, while day after day the train came gliding in from Grantham with couplings like wool, icicles pendent from the carriage eaves, and an air of punctual unconcern, or those who have known some other equally sterling trains" will, he thinks, pardon a little enthusiasm on the subject. We will, at all events; and we only wish that some of the people who, shut up in their own prejudices, keep declaiming against railways as at variance with all the poetry of life, could have their eyes opened in the same way, and instead of mooning over the past, could learn to see what a poetry there really is in this strong, stirring, beating heart of the life of to-day, and not least so in the railway system which makes its life-blood circulate, and which is as intense an expression of human energy as the Mediæval cathedral.

* Published by E. Stanford, Charing-cross.

THE DECORATIVE USES OF METALS.*

The Decorative Use of Bronze in the Past.—Bronze differs from brass, it is well known, in its ruddier colour, and from the absence of zinc or any metal that oxydises extensively when exposed to the air, it practically defies even a London atmosphere. When clean it is of the colour of copper, but it rapidly tarnishes to a dull brown, and under varying conditions of age and preservation assumes those varied skins or patinas that are so highly prized. The earliest works met with in our country, other than weapons, are prehistoric, and mainly derived from the Irish peat bogs. The early Christians in Ireland seem to have been well acquainted with the use of bronze, and some of their bells and other objects are of exquisite workmanship. Massive bronze fonts are certainly known to date from the tenth century; and at Hildesheim there is not only a very fine font, but the cathedral doors are of bronze, and there is a finely-ornamented column in bronze hard by that was removed from it. Although no examples of bronze doors remain in our country, there are many besides those at Hildesheim on the Continent, particularly at Trent and Verona. At Lubeck there are two solid bronze benches whose sides have bas-reliefs of knights in the conical helmets and mail of the Bayeux tapestry. These bring to mind that most colossal of all bronzes, Trajan's column at Rome, and the ancient bronzes of Greece and Italy. Remarkable among these are the bronze horses of St. Mark's, brought, tradition says, from Marathon; but most striking, perhaps, are the two Nubian boys from Herculaneum. These are poised on one leg in an attitude of intense expectancy, with all their muscles strained, waiting the signal to start a race. The artist did not disdain to resort to the use of glass for the eyes, and these, with the glossy black patina that all the Herculaneum bronzes have assumed, give an extraordinary reality and earnestness to the figures. To come back to our own country, however, we possess a splendid series of monumental bronzes in the form of recumbent effigies, such as the splendid examples in Westminster,—Eleanor and Henry III., Edward III. and Richard II.,—that of the Black Prince at Canterbury, the Beauchamps at Warwick, &c. Monumental works in bronze are too numerous to treat of here; but such exceptional works as the sarcophagus by

* See p. 471, *ante*.

Vischer at Nuremberg, the sumptuous tomb of Maximilian at Innspruck guarded by two rows of knights in full armour and dames of heroic size, and Michelangelo's tombs of the Medici at Florence are familiar to all. The Renaissance was marked by much fine bronze work, as the Ghiberti gates and the Perseus of Cellini at Florence, the Sansovino bronzes of Venice, the Donatello and other bronzes of Padua, and hosts of lesser works. There are also the bronzes in the Louvre, &c., of Cellini, Jean Goujon, and Clodion; and now, for the first time since the fall of the Roman Empire, the custom of erecting outdoor statues was revived. Our English series begins with a statue never surpassed in England, though it yields to some of the still earlier equestrian statues of Italy,—that of Charles I. at Charing Cross. But mention of these must be reserved till later. The Napoleon Column of the Place Vendôme and the statue of Bavaria near Munich are among the most remarkable efforts of modern date.

Lead.—Of lead little can be said from an artistic point of view, except that repairing lead roofs has led to an immense destruction of irrecoverable works of art. The graceful *flèches* of some French cathedrals and high roofs of châteaux and finials are of lead. In our country we have little more than two or three very early fonts in lead, a few spouts or gargoyles, some panelled and ornamental cisterns, the statue of one of the Georges which disappeared from Leicester-square, the kneeling negro with dial in Clement's Inn*; Shakspeare's bust, Drury-lane Theatre.

The Decadence of the Art of Working Metals.—We have seen how a complete change in public taste led to the extinction of artistic forging in iron late in the last century. The artistic working of brass and bronze suffered similar vicissitudes, though good work was produced for a few years longer in these metals. All gave way, however, before the utilitarian and feverish spirit that possessed the nation during the period which gave birth to such mighty results as railways, steamboats, the spinning-jenny, gas, and the electric telegraph. Until 1851 all art was dormant in this country,—if not dead,—but this "World's Fair" seemed to revivify all except the long-forgotten one of the blacksmith. A great display was brought together of objects that were then considered an immense advance beyond the miles of cast spear-headed railings that lined our street areas for miles and fenced in every open space. We smile now at the vulgarity of the clumsy and redundantly ornamented iron castings that received the highest awards, and wonder that the possibility of forging more graceful things by hand seems hardly to have been recollected, yet it is more than probable that in those days, when steam was king, work of this kind produced by hand would have been little esteemed. Be this as it may, while such arts as those of staining and enamelling glass for windows, working in gold and silver, reproducing long-lost lustres or glazes in ceramics, were in the full tide of revival, the decorative uses of forged iron or hammered brass were almost confined to ecclesiastical purposes. For thirty years nothing but cast brass gasfittings, painted in the worst Birmingham taste to imitate bronzes, and cast-iron stair-rails and grates, could be purchased by the public for domestic purposes,—though, under the careful tuition of leading architects, good if high-priced ecclesiastical brass-work was always forthcoming. In forged iron, however, little was produced except a few candelabra and altar-screens of designs only suitable for brass, finicking in finish, ornamented with jewels, colour, and gilding, and altogether lacking the breadth and ease of treatment so inherent to the material, and which distinguished it in former days. It is only after repeated exhibitions abroad have brought home to us that our foreign rivals are now fully alive to the value of the proper treatment of metals in architecture, that artist-minds in our great metal-producing country have bestirred themselves.

Its Revival.—The art of designing and working artistically in metals, after a long period of decay, is gradually reviving. One after another of our architects, of the many who are imbued with the true spirit of art, are using wrought metals where before they had used cast, and the work of the skilled hand and brain, where before they were content to use the stereotyped products of the foundry and the machine; yet the average of the wares manufactured for sale and bought by the multitude remain almost as debased as ever, and the question is by what means can a truer standard be introduced. There are many professed designers of metal work, and especially of gasfittings, yet scarcely any are able to emancipate themselves from the conventional and stereotyped ideas that for so many years have been formulated from Birmingham.

The Principles of Design.—Let us endeavour, in the first place, to arrive at some definite ideas as to the principles that are to guide us in designing work to be carried out in metal, and, in order to do so, let us clearly distinguish the various properties and capabilities belonging to each metal to be treated.

It is, of course, a truism to say that metal-work should be designed according to the true principles of art. But what are these, and how can they be defined? Unlike an exact science, the ideal of beauty, which is art, is intangible, and differs according to the taste of races and the constitution of individual minds; and this natural diversity has become accentuated by diverging habits of life, of surroundings, and of education. The cultivated Northerner would hardly accept the surroundings that would be grateful to the softer Oriental, nor a sensitive and highly-cultured man be satisfied with the glittering redundancy that is the highest form of art to the haunter of refreshment-bars. All this goes without saying, yet a professed designer must have some principles to guide him if he is to produce good work, and it should be the endeavour of those whose duty it is to teach to avoid the airy vagueness that takes possession of lecturers on art, and to reduce, at all events the elements of design, to some exact principles capable of being defined.

The cardinal point appears to be that the designer should commence by acquiring a thorough knowledge of the capabilities of the material in which the design is to be carried out and should keep this steadily before him, and make the construction apparent and part of the design, and the ornament subservient to utility and strength, if either of these qualities is required. To design for metal-work it is not absolutely necessary to have served an apprenticeship to a blacksmith, a brazier, and a founder, though this would be an advantage, but the designer must have watched at least every part of the processes till he is thoroughly acquainted with the difficulties that have to be overcome, so as not to tax unnecessarily the skill of the operative.

Of Wrought Iron.—In the treatment of wrought iron we must first consider what are its special properties, in order to utilise them to the utmost degree that may be necessary. We find, then, that, while sharing with gold and silver and platinum the property called malleability, it far surpasses them in hardness and tenacity,—that is, the power of resisting a strain tending to draw or burst its molecules asunder. It can be drawn through rollers into railway iron, or into wire as fine as the finest thread, and it is rolled into plates fit to armour an iron-clad, or into leaves the forty-eight-thousandth of an inch in thickness. It can be bent in any direction, and hardened or softened at will. It is these properties which make it so facile an instrument in the hands of the smith. Malleable iron fit for the forge is prepared in a somewhat different way to that intended for casting. The actual processes by which the ore is converted into "pig" and from the "pig" (which would crumble into fragments under the blows of a hammer) into iron fitted to take the most beautiful forms, would occupy many pages, but it is finally fashioned into short bars, thence taken to the "squeezers," and on to the rolling-machines, in which it is laboriously reduced to the bars or plates of the forms and fibrous structure and toughness required by the smiths. Out of these bars or rods or sheets of iron, of various thicknesses, all the various flowers and foliage, scrolls, and interlacing in which the skilled smith revels, have to be produced. With no other tools but the forge, the anvil and the hammer, the vice, and a few minor chisels or punches on occasion, the artist produces by repeated beatings and weldings and hammerings work whose delicacy rivals that of the goldsmith, or whose massive strength would make a prison-door. The actual processes used by the smith are few, and easily mastered, and all beyond depends on the individual talent, neatness, and appreciation of the operative. In a material of so little intrinsic value, yet so malleable, so tough, and so enduring, the aim should be to produce a beautiful and graceful, free and ever-varying effect, bold in relief, elegant in contour, and strongly welded and riveted together, without visible effort. And the treatment of the simple scroll, curled and bent as it may be in endless variety, drawn out and tapered in proportion, is undoubtedly the best. Flowers and foliage of conventional type may be sparingly added when a richer effect is desired; but it is in questionable taste to reproduce, as in the celebrated gates of Hampton Court, richly embroidered and fringed draperies, and to make so lavish a use of highly elaborate foliage and insignia. Even as mere *tours de force*, some of the intricate sixteenth-century grilles, which probably presented no less technical difficulty, and occupied, perhaps, relatively an equal time, are preferable. As instances of good effects produced by the simplest means, we may take the familiar Venetian chain and some grilles which are made up entirely of small scrolled pieces of iron, and whose beauty is wholly due to the judicious piecing together of these. In all such the rivet-heads and collars are made an important feature of the design. Mouldings, except in Mediæval work, should be avoided, as the labour to produce them is disproportionate to the effect gained, and in long runs of railing it should be borne in mind that the introduction of panels of simple scroll-work at intervals is less costly than to shape the terminal spikes into spear-heads simulating cast work, cast heads being, in fact, very often welded on to the bars in so-called wrought work. For staircases a flowing treatment is often actually cheaper than a treatment of upright bars, and is, in many cases, far more graceful and artistic. An alternation of close and open panels produces a charming effect, and provided strength and rigidity are apparent at intervals, the filling-in may be of almost lace-like character. Wrought open-work newels are exceedingly graceful, and even lamp-columns, of pieces firmly welded and riveted together, can be made most beautiful objects. Wrought iron, again, is peculiarly adapted to the canopies of drinking-fountains, and laid over a roof of gilt copper has the richest possible effect. It is a matter of surprise that no work of this kind has been erected in England, though the price would be far lower than the modified tombstones that are put up at street corners. A good deal is to be said in favour of wrought-iron movable dog-grates, both in point of convenience and effect. Of lanterns and gasfittings in wrought iron it is impossible to speak, so endless are the possibilities. Great lightness should be the aim for indoor purposes, except for schools and public places, and in designing electric-light fittings the very acme of lightness may be obtained. There is great danger always, in striving to produce for these purposes designs that shall be original, that the merely eccentric will be mistaken for quaintness, and oddity for genius. This danger will be greatly lessened if the practical utility of the object is made the first consideration, and the sense of proportion maintained. The ironwork can be brought to the brightness of armour if wished, and preserved so with a very thick coating of oak varnish, or it may be picked out in colours and gold, or entirely gilt, or lacquered to the tone of old gold. In the latter case it makes a beautiful combination with Venetian glass, and in all instances glass is of great assistance. Most frequently it is best left of a semi-dull blackness.

Though, to watch a dexterous smith, all the processes seem exceedingly easy and simple, yet they are very difficult of execution by an amateur. If economy be desired, the iron should not be chopped into small pieces, as this entails expensive fitting, neither should many very sharp bends be introduced nor many scrolls made to spring from one stem, as this leads to much welding, but the iron should be kept in long pieces and every end utilised.*

Proposed New Almshouses at Brixton.—At a meeting of the Court of Common Council on the 3rd inst. it was resolved to rebuild the City Freemen's Almshouses in Shepherd's-lane, Brixton, belonging to the Corporation, at a cost not exceeding 11,500*l.*, and it was further resolved to instruct a committee to advertise for designs and estimates, and submit the plan selected for the final approval of the Court.

* Since this paper was written this figure has been removed, we know not whither.

* To be continued.

FURTHER EVIDENCE ON THE PARISIAN BUILDING TRADES.

THE transformation of the old into the modern Paris has not only supplied an exceptional amount of work to those who have built the new boulevards and new districts, but those whose mission it is to destroy have been nearly as busy. The old historical quarters, picturesque and unwholesome, have been cut through and through by the monotonous splendour of the modern boulevards. A healthy current of fresh air filtering through the luxuriant vegetation of the trees that line each side of the way now passes over the noisome quarters whence the revolutionary hordes of starving people emerged to storm the Bastille and overthrow the monarchy. The house where Marat was murdered; the inn where Charlotte Corday descended when she arrived in Paris on her mission of assassination; these, and many similar relics of the great revolutionary period, have all been pulled down within the last few years; for the Haussmannisation of Paris was continued long after M. Haussmann and the Empire had disappeared altogether from the scene. And now that there seems little or nothing more to be done, now that the fever for building has exhausted itself, the workmen whose task it is to clear the ground, to demolish the old so as to make room for the new, find themselves without employment, and are bitterly complaining because the work of regeneration cannot be commenced all over again. Nor are they alone in this; their employers are equally in distress, and, like others in the same position, have resorted to that hall of lamentations, the committee-room where the Commission of the Forty-four patiently collect evidence on the industrial crisis.

Messrs. Groselande, Picart, & Meygret, master contractors for the pulling down of houses, &c., stated that in ordinary times there were at least 1,500 workmen daily engaged in destroying the old dwellings of Paris, but that now barely a third of this number could find employment. The ordinary wages paid are estimated at 6d. the hour for the journeyman, and 4½d. for his boy or assistant. When, however, there is an extra amount of work to be done the wages increase to the extent of a ½d. or even 1d. per hour. This testifies to a slight improvement, as fifteen years ago the men only earned 5d., and the boys 3½d. the hour. There are no self-created benefit societies in this trade, but the men are insured against accidents. The premium is paid, half by the employers and half by the workmen, the amount being deducted from their salaries. In other words, the insurance is rendered compulsory by the custom of the trade, and the sum paid is fixed at 11 centimes for each day of eleven hours' work. Sometimes, when business is very slack, the employer pays the entire premium, which is equal to 1 centime for every hour of work, or 1d. for ten hours. In exchange for this, should the workman be killed, his widow would receive 280*l.*; and if he is wounded he obtains an allowance of 2s. per day till he is cured. The workmen, however, are said not to understand the working of this system of insurance, and look upon the deductions made from their wages as a sort of tax, which they often resent. The trade is not limited to the demolition of old houses; for the same contractors traffic in the sale of the old materials, which are often used in the building of new houses. For this purpose, some 600 carpenters and joiners were employed to trim and repair the old timbers, the doors, windows, &c., that might be used again. Now, however, new doors, all ready-made, are imported from abroad, and can be purchased in Paris for 5s. 5d.; while, formerly, the joiner was paid 4s. 7d. merely for making the door, without counting the value of the wood. Under such circumstances, contractors find themselves compelled to dismiss the French workmen, and import these things ready-made from Norway and other countries. The witnesses further insisted that the spirit of class animosity which was rapidly gaining ground helped to intensify the crisis. They protested that the employers were not interested in grinding down the workmen. They felt, on the contrary, it was best for all parties, even for the masters, that the men should be in the receipt of good wages, and lead happy, comfortable lives, and this they proved by seeking to help the workmen in times of depression by retaining their services when there was really little or nothing for the men to do. But the interference of the Municipal Council, which had, by its example, established a very high scale of wages, contributed greatly to disturb the trade. Workmen were now always dissatisfied unless they were paid according to the town tariff, and this was altogether beyond the powers of some of the employers.

The delegates from the union of the masters who clean, mend, and construct fireplaces, chimneys, stoves, &c., expressed similar opinions with respect to the town tariff. They also related that there were about 350 masters, employing some 3,530 men, in their trade. The workmen now receive 5s. 10d. per day, their assistants 3s. 2d., which represents a very great increase; for, in 1862, they were only paid 3s. 10d. and 1s. 10d. respectively. On the other hand, this is one of the few trades connected with building which has not suffered in a marked degree from the present crisis. Apart from the building of new houses, repairs and alterations of the existing dwellings provide sufficient work for the trade. It is only those firms connected with societies for building on credit which have suffered. The treaties of commerce and foreign competition produce but little effect on this business; but, on the other hand, the trade is almost exclusively in the hands of foreigners. At least two-thirds of the employers are not Frenchmen, and more than half the workmen come from abroad. Those who are French are not Parisians, but Auvergnats, while the others are for the most part either Italians or Swiss. As the winter is naturally the busy season, a large number of the men return to Italy for the harvest-gathering, where they work in the fields. All the men are laborious and economical, and almost invariably save a considerable portion of their wages, so that in old age they are able to buy small plots of land, and live peaceably in their native mountains. Some time ago 102 employers founded a mutual assurance society, to enable them to assist their workmen in times of illness, and when the law legalising trade unions comes into force, it is thought that this trade will be able to create a very powerful benefit society.

The master manufacturers of electric bells, acoustic contrivances, and lightning-conductors also gave evidence of a reassuring character. They had work to do in the old houses where modern electric appliances are introduced, and therefore did not feel the effects of the present trade depression. At the same time, fears were expressed that this would not suffice to provide employment for the trade for an illimitable time. As a rule, some 400 workmen were engaged in this branch, though the number now actually at work was not quite so large. The day's work is fixed at ten hours, and this all the year round. The salaries vary from 5s. 7d. to 6s. 5d. per day. From 1867 to 1874 the wages did not exceed 4s. 10d. per day, but now that they have increased so largely, the employers only retain the ablest workmen during dull seasons. But for the industrial crisis this trade would have developed very considerably, foreign exportations have fallen off to the extent of about fifty per cent., and this is attributed to the prohibitive custom-house duties imposed by many foreign powers. On the other hand, the reduction of home business through the cessation of building is estimated at about twenty-five per cent. German competition is felt in the foreign, but not in the home markets, and the success of the German firms is attributed to the very low wages the workmen accept.

The delegates of the Paris engineers and mechanics gave more than a mere account of their trade. They propounded a politico-social programme that is of interest as emanating from one of the most intelligent bodies of French workmen, who are often, indirectly at least, connected with the building trades. The workman who acted as spokesmen were MM. Delahaye, Carry, and Aucordier. The former had lived for some time in England, and was a member of the Amalgamated Engineers' Society. They attributed the present crisis to the fact that the men worked for too many hours, and employed very inferior tools. They placed in the hands of the Commission a very interesting document which contained not merely the reports of the working men delegates to the recent universal exhibitions, but a comparative budget of the resources and expenditure of American, Dutch, English, and French working engineers. Of the latter, there are about 20,000 in Paris. To remedy present grievances, they suggest that the Government should advance a sum of 240,000*l.* so as to create a co-operative society for the manufacture of locomotives, &c. These were, for the most part, made abroad, to the great detriment of the national industry; and the workmen, if assisted to form a co-operative society, would undertake to provide steam engines at 3 per cent. below the price for which they could be obtained from England, Germany, or Austria. These are the proposals made by the delegates:—

1. Reduction of the day's work to ten hours.
2. Creation of co-operative productive societies.
3. Freedom of association and coalition.
4. Creation of a labour statistical bureau.
5. Modification of the customs tariff.
6. Reform of taxation and establishment of an income-tax.
7. Reduction of cost of transport by rail.
8. Improvement of means of communication, such as railways, canals, and bridges.
9. Extension of commercial relations with the colonies and foreign countries.
10. Construction of a Metropolitan District Railway in Paris.

It will be seen from the above that the engineers, like so many other French working men, take a broad view of the questions at issue, and distinctly rely on co-operative production and State assistance as the best means of avoiding future difficulties between capital and labour.

TWO OLD THAMES BRIDGES.

PUTNEY AND BATTERSEA.

THE recurrence of the University boat-race reminds us that two old landmarks of both the former and present courses will shortly disappear. The first race over the Putney and Mortlake course took place in 1845. The sister Universities had met on the Thames, near London, five times previously to that year, rowing from Westminster to Putney, and passing underneath Battersea and Putney bridges.*

These bridges have many points in common. They both date from the last century; both are constructed of wood; each bridge joins two ancient parishes, all four of which are distinguished alike by the towers of their churches close to the waterside. At Chelsea, a seat of the bishops of Winchester, and home of Sir Thomas More, we look across the river to Battersea, the retreat of Henry, Viscount Bolingbroke, Pope's beloved St. John. From Putney, the birthplace of Thomas Cromwell, Earl of Essex, we view the Fulham Meadows, on the northern shore, which yet remain of a manor that was appropriated to the London see long before the Conquest. Opposite to Battersea Church, and near to Hammersmith Bridge, may be traced the channels of two streams which flowed into the Thames from the uplands of Middlesex. Corresponding with these are the Wandle and Beverley Brook, whose sources lie in the nearer chalk hills of Surrey. In Battersea Fields were fought, amongst many others, two historic duels. The one between George Villiers, second Duke of Buckingham, and Francis Talbot, eleventh Earl of Shrewsbury, March 16th, 1667. It was on this occasion that the Countess of Shrewsbury,† whose husband was killed, held her lover's horse disguised as his page. The other, on the 21st of March, 1829, between the late Duke of Wellington and George, ninth Earl of Winchilsea, when neither was hit. In a plan of 1710, the fields embrace the Shoulder-of-Mutton Field and Latchmoor Mead, a waste of some 300 acres, the resort of gipsies, costermongers, prizefighters, and thieves; a part thereof, to the extent of 185 acres, together with the grounds of the Red House (bought for 10,000*l.*) and the Regency Tea-gardens, were reclaimed and planted by the Government in 1857-8. In the Park lie the neglected stones of the beautiful colonnade of old Burlington House, Piccadilly. Their untoward condition suggests a contrast with the happier fate which attended Inigo Jones's rustic gate, which was removed from Beaufort House, Chelsea, to the villa, now the Duke of Devonshire's, which Kent built for the Earl of Burlington at Chiswick. Over against the Red House, where it was customary to salute the contending crews with a peal of ordnance, stands a Royal Hospital that we would fain attribute to the large-

* In 1836, 1839, 1840, 1841, and 1842. Cambridge also rowed against the Leander Club over this course in 1837 and 1838. In the interval of 1836 to 1842 Oxford and Cambridge crews, though not always as representative "University eights," had competed in the Thames and Henley Regattas.

† Anna, daughter of Robert, second Earl of Cardigan.

hearted benevolence of a royal mistress.* In the former stable-yard, now the site of Sir John Soane's Hospital Infirmary, stood a house of Sir Robert Walpole. It had been occupied by Nell Gwynne; and close by, in Paradise-row, her compeer, the Duchess of Mazarine, gave the musical entertainments which are believed to have led to the introduction of Italian opera into England.† It were impossible to enumerate in this place one quarter of those who make Chelsea famous in London's domestic history. In Beaufort House lived Sir Bulstrode Whitelocke during the Commonwealth; Pym, member of the Long Parliament, lodged in the parish. Steele rented a house at the waterside, for which he paid 14*l.* a year. He dates a letter hence to his dear Prue, February 14th, 1716. From Sandy End Addison writes two letters, on the 20th and 27th of May, 1708, to the youthful Earl of Warwick. In Shaftesbury House, by Odell's-place (home of the author of the "Characteristics"), and which afterwards became a workhouse to St. George's, Hanover-square, he composed many an article for the *Spectator*, as also Locke a portion of his Essay. On the 9th of March, 1661, Evelyn, in company "with that excellent person and philosopher, Sir Robert Murray," visited Robert Boyle at this house, "and saw divers effects of the Eolipile for weighing aire." The renowned Bess of Hardwick, builder of Chatsworth, Oldcotes, and Hardwick, county Derby, dwelt for many years in Alston House,‡ after the death of her fourth husband, George, sixth Earl of Shrewsbury, the humane custodian of Mary Queen of Scots. Thomas Beauchamp, Earl of Warwick, a hero of Crecy and Poictiers, dates his will from Chelsea. Doctor Atterbury, when Dean of Carlisle, and Swift, were opposite neighbours in Church-street, 1711. The latter, in his Journal to Stella, frequently refers to his stay in what was then Church-lane. In one passage he says:—"I got here with Patrick and my portmanteau for sixpence, and pay 6s. a week for one silly room, with confounded coarse sheets. I lodge just over against Dr. Atterbury's house; and yet perhaps I shall not like the place the better for that." In another he speaks of the rare Chelsea buns, sold by Richard Hands in Jews'-row. Swift vacated this lodging on the 4th of July, 1711. In Church-lane, too, lived Thomas Shadwell, who succeeded Dryden as poet-laureate; and (in a house previously tenanted by Dr. Arbuthnot) his son, Sir John, Queen Anne's physician; also John Bowacke, compiler of the "Antiquities of Middlesex." To his "powre house in Chelcith" § More had taken Holbein as his inmate, and Erasmus, who gives us so charming a picture of the Chancellor's household. In its garden his sovereign would walk with him for the hour together, says Roper, his arm about his favourite's neck; the same garden wherein Foxe avers that More used to bind heretics to his "tree of Truth." Passing through the hands of numerous noble personages, including the great Lord Burleigh and his son Robert, the two Dukes of Buckingham of the Villiers line, and Digby, Earl of Bristol, Beaufort House‖ was purchased by Sir Hans Sloane, who demolished it in 1740. A small piece was, however, long preserved in the southern wall of the Moravian burial-ground, Milman's-row. The house stood at the southern end of Beaufort-row, since Beaufort-street, facing Battersea Bridge. We have mentioned the bishops of Winchester. Bishop Morley removed to Chelsea from Southwark in 1663, having bought of Charles Cheyne for 4,250*l.* a house which James, Duke of Hamilton, had erected next to Henry VIII.'s old Manor-house. Winchester House appears in a map of 1836 as overlooking the Thames between Manor-street and Cheyne-row. On its destruction soon after were discovered some figure-subjects, in fresco, which Hogarth is believed to have painted for his friend, Dr. Hoadley. Sir Hans Sloane built the new Manor-house westward of the Museum of Don Saltero, his valet, in Cheyne-walk. World's End, at the southern extremity of King's-road,* subsequently Cremorne Gardens, was in high favour with the gallants of Charles II.'s day. Congreve, in "Love for Love," here places an amusing encounter between Mrs. Frail and Mrs. Foresight. In Waterman's-court lived for many years W. Lewis, bookbinder, intimate friend of Smollett, and the original of Strap in "Roderick Random." Smollett himself went to Chelsea with the vain hope of restoring his daughter's health: they occupied Monmouth House, in Lawrence-street.

Chelsea Reach, perpetuating in name the Chessel-ea, or pebble beach, of Saxon times,† has of late years inspired a certain school of painters,—amongst them Dante G. Rossetti, who lived in Cheyne-walk,—who delight in the varied effects of river mist, of glittering barges and ruddy barge-sails, of begrimed coal-flats and tug-boats. But long before it had become the fashion to describe a painted canvas as though it possessed every attribute save that of colour, or, indeed, a piece of music as if it appealed to every sense except that of hearing, the great master had seen and felt its charm. Closing his now demolished house in Queen Anne-street, Turner took lodgings at No. 119, Cheyne-walk, that he might enjoy without interruption the rising and setting of the sun over the placid surface of the river. Adopting his landlady's name he styled himself Mr. Booth, and became known to the *gamins* as "Admiral" or "Puggy" Booth." He built for himself the balcony on the roof of that humble little house, and there he died on the 19th of December, 1851.

Putney is a corruption of "Pwtenhithe," or "Puttenhythe," denoting the existence of a landing-stage or haven. The approach thereto lay through the opening in the river-wall at the end of Brewhouse-lane. This latter name recalls the homestead of the Cromwells. Their domicile at Putney forms the text of two articles by Mr. John Phillips, which we printed some ten months ago.‡ It is, therefore, unnecessary to go over the ground again. The bridge, with its quaint toll-house covering the Middlesex end, was built in 1727-29, at a cost of 23,075*l.*, from the plans of Cheseldon, the celebrated surgeon. One or two of the arches have since been widened. At Putney Cromwell fixed his head-quarters in 1647, the King being then at Hampton Court. Across Putney Bridge, and by the houses of Fairfax and Ireton in High-street, William Pitt must have frequently passed on his way to or from Bowling-green House, near the Heath. That house, in which he died, lay not far from the spot where he fought G. Tierney in a duel, and where, a few years later, Lord Castlereagh wounded George Canning. Eastwards of Putney Hill stood the villa in which Edward Gibbon was born on the 27th of April, 1737. The church contains a memorial chapel, having rich tracery, to Nicholas West, bishop of Ely,—he died 1533,—whose father was a baker in the village. The river fisheries of Fulham have long yielded their fame to that of its market gardens. Its rural aspect is rapidly changing, and some effort is needful to realise what it was when inhabited by Norden or Jacob Tonson; by Mrs. Fitzherbert, at East-end House, or Mrs. Robinson ("Perdita"); by Rudolph Ackermann, at Ivy Lodge, or Francis Bartolozzi and his grand-daughter, Madame Vestris, at Cambridge Lodge. Samuel Foote lived in Hermitage Lodge, North End; at Egmont Villa Theodore Hook. We can but mention by name John, Lord Mordaunt (Viscount Aviland) and his son, the Earl of Peterborough, Samuel Richardson, and Bernard Lintot, whose homes surrounded Parson's-green. The gardens of Ravensworth House, as planted, *circa* 1760, by John Ord, rivalled in the interest and rarity of their collection those of the episcopal residence, upon which bishops Grindal and Compton expended so much care. The church can boast of numerous monuments, one commemorating Shakspeare's Dr. Butts; another Dorothy, Lady Clarke (and afterwards wife to Dr. Samuel Barrow, who wrote the Latin lines to "Paradise Lost"), for which Grinling Gibbons received 300*l.* Several prelates lie buried around. He who would muse awhile on the past may profitably turn from the portraits in the bishops' library to the quaint epitaphs in the churchyard. Then pausing on the bridge, or strolling along the meadows by the river, and regardless of the new works or hideous aqueduct, he may recognise many a choice composition depicted by the pencil of De Wint.

* With this compare Greenwich Hospital, on the same river, and designed by the same architect,—Wren,—founded by William III. in memory of his cherished consort, whose pity had been kindled on witnessing the sufferings of the victors at Cape La Hogue.

† Nell Gwynne also resided at Sandford Manor House, where are the gas and coke works, by Counter's Creek.

‡ At the western end of Cheyne-walk. Failing the line of Sir Jos. Alston, whom Charles II. created a baronet, it became the porcelain works in which Dr. Johnson experimented, and then Harwood & Co.'s stained paper factory. It was pulled down in 1813.

§ See his letter to the king, on hearing of his downfall, Cottonian MSS.: Cleop. E. 6, fo. 182.

‖ So called in later years from a quondam owner, Henry, third Marquis of Worcester, created Duke of Beaufort, December 2nd, 1682.

* Converted at the Restoration from a pathway through the fields into the king's coach-road to Hampton Court. Opened to the public in 1719, on the petition of Sloane, lord of the manor, and other freeholders. King Charles II. built the so-called Bloody Bridge for this road across the West-bourne (at Sloane-square).

† Conf. Selsey (Chelsey), co. Sussex; the Chiselle, at the Axe's mouth, in Devonshire; the Chessil bank uniting Portland with the mainland.

‡ See *Builder*, vol. xliv., pp. 601, 687.

THE NEW SCIENCE AND ART MUSEUM FOR DUBLIN.

The *Freeman's Journal* says that on Saturday evening last the committee to whom the selection of the designs for the new Science and Art Museum and National Library was entrusted arrived at a conclusion by selecting the design bearing the motto "Crom a Boo," sent in by the firm of Messrs. Thomas N. Deane & Son, of Dublin. It will be remembered that over fifty designs were sent in for competition for the new National Museum and Library, which will be, without question, the largest public work erected in Dublin for many years, involving an outlay of over 100,000*l.* From these the committee chose five designs as being, in their opinion, on the whole, the best. Two of them were English, and the remaining three were the work of Irish architects,—viz. Messrs. Holmes & Hornblower, of Liverpool; Mr. Williams, of Bangor (North Wales); Messrs. Deane & Son, of Dublin; Miller & Symes, of Dublin; and Mr. Drew, of Dublin and Belfast. These five competitors were invited to send in detailed working drawings, so that from these the committee might be able to judge which was the most suitable, and arrive at a final selection. The drawings, which are on the scale of half an inch to a foot, arrived in Dublin within the past fortnight, and have been placed in one of the large rooms of the National University Buildings, Earlsfort-terrace, to afford the committee an opportunity of examining them. The committee consisted of Lord Powerscourt, Sir W. Gregory, Sir Robert Kane, the Lord Mayor, Colonel Noble, C.E.; Colonel Festing, R.E., of the Science and Art Department, South Kensington; and Mr. J. M'Curdy, architect; with Major Parker, C.E., honorary secretary. Several meetings were held, at which all the members of the committee attended, with the exception of Sir William Gregory, who is absent in Ceylon, and the designs were compared and discussed with great care and deliberation before coming to the decision above announced.

One conspicuous merit of Messrs. Deane's design, in the opinion of the committee, is the care taken to make the new buildings harmonise with the existing edifice of Leinster House, and the due subordination of the entire design to the means at disposal,—both as to space and money,—so that while ornament is not lost sight of, utilitarian and practical considerations are steadily kept in view. The frontage in Kildare-street, extending from the College of Physicians on the north side to Kildare-place on the south, will measure nearly 600 ft. Irish materials will be employed as largely as possible in the work. The front, with its central dome and side wings, will be of Dalkey granite or some similar native material, and the more ornamental portions will be constructed of the Mount Charles stone from the county Donegal, which for its rich cream-coloured hue is preferred by many to Portland stone. Externally the design endeavours to adhere to the architectural character of Leinster House,—those parts of the new building which are nearest to it being almost identical in treatment, while the more distant portions of the structure gradually get into a style more free and in better consonance with the object of the building. The Museum, which will be situated to the right side, nearest to Stephen's-green, will be entered through a grand circular vestibule, composed of specimens of all the Irish marbles, so arranged as to set off and display their varied beauty and finish to the highest advantage. The circular vestibule will lead into a spacious central court, 112 ft. in length by 68 ft. wide, with a glass and iron dome roof, supported by iron columns, and surrounded by a gallery 10 ft. in width. Around this court are rooms and galleries of various sizes, there being a large

gallery at each end 100 ft. by 38 ft., both on the ground and upper floors. Opposite the entrance, and having crossed the central court, the grand staircase will be reached, from which access will be had to all the upper portions of the building. The staircase will form a conspicuous feature of the design.

On the side of Leinster House, but communicating with the Museum by a covered-way, will be the buildings devoted to the library and reading-rooms. The principal reading-room, of a semi-elliptical shape, will be 65 ft. long by 60 ft. in width, and calculated to accommodate over a hundred readers. At each side of the large room will be two smaller or students' reading-rooms; and separated from them by a corridor will be the librarian's apartments and the ladies' reading-room. At either side of these will be the spacious apartments forming the library proper, or, as they are called on the plans, the "book stores," the shelves of which will provide for 800,000 volumes.

The plans also comprise a new lecture theatre, more spacious and commodious than the present one, and which will be placed on the north side to the left of Leinster House, on the site of the present School of Art, and new rooms for art students, who will be transferred to the south side of the building.

The total area afforded in the new buildings will be over 78,000 square feet, and the entire estimated cost is 109,700*l.*, of which the Museum and Art School will be 73,500*l.*, and the library 36,268*l.* It may be mentioned that the floors will be fireproof, composed of iron and concrete. It is hoped that, now that the committee have selected the plans, the sanction of the Treasury and other Government departments will be obtained without delay to the advertisements for tenders from contractors, so that the work may be commenced during the summer.

We understand that the drawings will be exhibited in the course of a few days.

FURTHER NOTES AS TO THE HOUSING OF THE POOR.

THE problem to be solved is to provide good wholesome dwelling-places for the poor, at a rental within their means of paying, and at a cost which will leave the landlords a fair return for their outlay. These dwellings must be, in the majority of instances, within easy distance of the places where the men work, and therefore in districts where the ground-rents are high, and the cost of erection of course increased by that amount. Notwithstanding the experience gained in the past, and the examples of Edinburgh and Paris, we cannot say that the architects employed have risen to the occasion, for if they have secured the maximum of comfort, they have not attained the maximum of beauty in the structures. The most ardent well-wisher of the houseless poor would not desire that palaces should be built for their accommodation, but they might be a little less suggestive of a gaol or a workhouse than many of them are, without adding materially to the expense.

It is also a matter of doubt if there should be too much of the philanthropic element visible in their management. All the supply stores, if these stores are established, should be under the management of the tenants, but tenants of this class are itinerant dealers in many instances themselves, and rather scorn "stores." If the new houses are to be simply a commercial undertaking, the poor should look after their own amusements, even if a news-room were provided in addition to bath-rooms, wash-houses, a public kitchen, and bakery. These are indispensable for the sake of economy and comfort. The great drawback to many of the piles of dwellings at present erected is the public staircase. It is too frequently dirty, and is the resort of children and the meeting-place of the young of both sexes. You may avoid disagreeable characters in a street, even if you only inhabit one room; but you can hardly avoid contact with them on a staircase to which they have an equal right to yourself. Numerous stairs are a necessity in order to provide ventilaton, and the means of easy exit and entrance in case of fire. It is this necessity that has prevented, to a great extent, the chambers being ranged in galleries like the "rows" at Chester, independent of each other, and each floor having its own special stair. This arrangement would give an architectural character to the court, in the fashion of the old inn yards.

In the interior fittings of these dwelling-places much could be done to improve their comfort, and lessen the cost of living, if only wives and daughters in charge would take an interest in the tidiness and cleanliness of their homes. But a woman who has not sufficient self-respect to wash herself or her children is hardly likely to care what appliances are provided for her in the rooms in which she dwells. Grates that burn but little coal and yet give out sufficient heat and afford the means of cooking something else besides potatoes or boiling the tea-kettle would not be appreciated by her, but they would by many. In some of the new dwellings we have seen the indispensable fittings of a sitting-room made fixtures in a double sense, for they are strong enough to bear ill-usage, and belong to the landlord.

It is, however, in the bedrooms where there is the greatest opening for improvement. There is, amongst the very poor, a disposition to make their beds on the floor. If they have one or two bedsteads and the family is at all numerous, many of the beds are made up on the floor regardless of draughts, dirt, or other inconveniences. If bed-places were built in tiers and in recesses and lined with glazed bricks they could be hidden by a piece of drapery during the day, and be conducive to decency and morality at night. The question of eking out the scanty furniture of the poor by these structural contrivances is eminently worthy of consideration.

The question of sinks and closets, and the disposal of ashes and waste, is a very important one, as well as the supply of water. The latter is not more important than the disposal of dust, ashes, and refuse matter. In the better class of houses built in flats, arrangements have been made to sweep these into a shoot, and let them fall into a common receptacle; but this plan is objectionable on sanitary grounds, as well as being likely to become a nuisance from the clogging of ashes and dust on the sides. The metal bucket or box, which can be removed day by day, is the best, the liquid slops being discharged down the drains.

There are many minor arrangements which could be introduced at little or no expense, if provided for in the first instance; but no thought, no wise arrangement of health officer or architect, will avail if the people will not care for their homes. Out of thousands who represent "Outcast London," there are many who would gladly exchange squalor for comfort and cleanliness, but, on the other hand, we must not shut our eyes to the fact that the great majority have been born with these surroundings, or have, by their own acts, abandoned home comforts from sheer love of drink, of vice, and filth. They like to herd with the swine. They have not an ambitious thought beyond the next day's drink and victuals, for which they care not if they beg or steal. Water to them is unnecessary and abhorrent. They care not for what the world calls decency, and have to be dragooned into sending their children to school. Theirs is no "bitter cry," and they care not if "London waits" till Domesday for the cleansing of the Augean stable. They will "move on" when the policeman orders them, but to "move upward" is not in their nature. To place these in the improved dwellings of the future is simply to turn them into whited sepulchres, fair without, but loathsome within. The ever-growing, ever-increasing population of London and our great manufacturing centres must, however, be provided for. The highest results of scientific investigation must be applied in the simplest manner, and, if we cannot reclaim to habits of decency those who have so hopelessly fallen, we can at least prevent others from falling into the social slough of despond.

LONDON AND COUNTY BANK, KING'S CROSS.

THE illustration in our present issue shows a new branch building which has recently been opened by the London and County Banking Company, opposite to the Metropolitan Railway Station in the Pentonville-road, King's-cross. It has a frontage of 30 ft., is faced with Portland stone all up, and is finished with simply-treated Classic detail, attention having been paid to the necessity for ample window-space. The premises comprise a roomy bank, with manager's and waiting rooms, &c., on the ground-floor; two strong-rooms and storage space in the basement, and thoroughly good house accommodation for a manager or head-clerk on the upper floors. The whole, including fittings and lift, has been carried out, at a cost of about 5,000*l.*, by Messrs. T. Rider & Son, under the superintendence of Messrs. Glover & Salter, who, it will be remembered, are among the architects selected in the first War Office competition.

SEDILIA, WYMONDHAM.

THIS interesting piece of Renaissance work stands in the easternmost arch on the south side of the Norman arcade of Wymondham Church. It is executed in terra-cotta, presumably of Italian workmanship, and is in a good state of preservation, except that the ornamentation is a good deal blunted and choked by repeated coats of whitewash. The tone of the terra-cotta itself is a warm buff. The illustration is taken from a measured drawing by Mr. Walter L. Spiers.

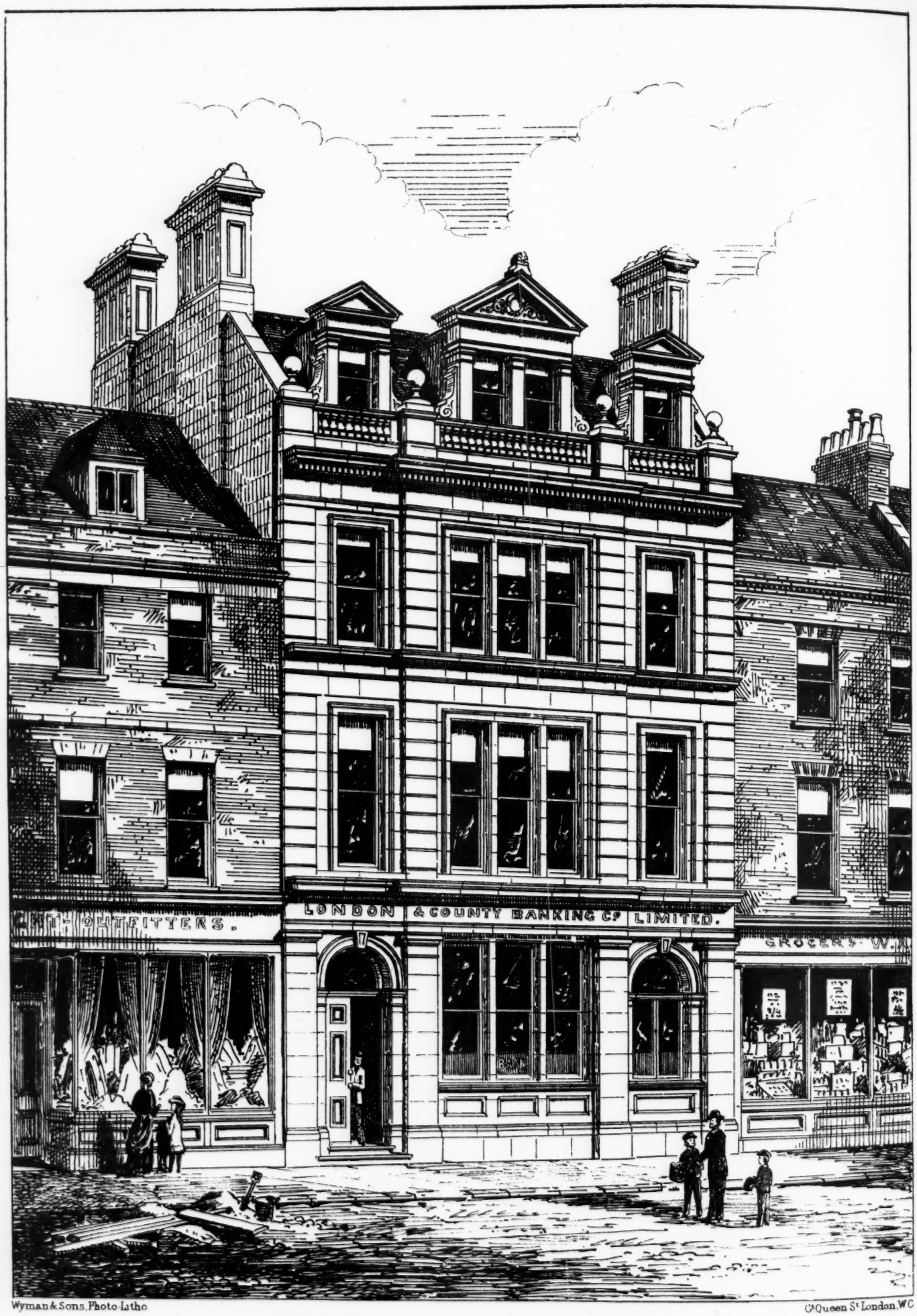
WADHURST PARK, SUSSEX.

THIS country seat, part of which has been already illustrated in this journal (vol. xxxv., p. 504), has been recently extended, and now measures 360 ft. from the west wall of the chapel to the east wall of the library. The nucleus of the group consisted,—when the present owner, Mr. C. de Murieta, took the property,—of most of that portion which lies at an angle to the rest. That portion was already an accumulation of successive dates of building; the rooms now used as butler's pantry and butler's bedroom are panelled from floor to ceiling, and have been illustrated in the Architectural Association Sketch-book (vol. iv., pl. 38). This panelling, the deep chimney-corner, and the fire-dogs,—cast from the local iron contained in the "Wadhurst clay,"—appear to date from the early part of the seventeenth century. The outer wall over the lamp-room has a circular stone bearing the inscription, "B. J. M., 1797," and probably includes the part now called cook's room, back hall, and the floors over the whole of the part hitherto mentioned. The kitchen, scullery, and larder (which have been recently rebuilt on the same foundations) were probably part of the same work. Then a front was added to the house, consisting of a modern dining-room (now the servants' hall), drawing-room (now brushing-room), and staircase, and the whole thus brought to a square outline was roofed in with a lead flat and a cupola, surrounded by a slate slope and a pediment over the centre. In this condition it was as hideous as could be conceived, and deterred several people from taking the fine estate on which it stood. The present owner, however, saw that it would answer his purpose as a temporary residence, to which a more suitable one could be attached, and he commenced operations, in a characteristic manner, by building the long range of stables for summering hunters, which are shown on the upper left-hand corner of the view. He next proceeded, as a good landlord, to build new farmsteads on the estate, one called "The Coombe," and the other "Flatenden." In October, 1872, the foundations of the new mansion were begun. The central hall contains the cross axes of the entire house, as will be found by examining the position of the main doors and windows. Looking westwards the chapel is seen. This had already been begun. It is lined with Garrard's tiles, which are reproduced from old Spanish ones. The present western portion of this central hall was the dining-room, but, being found too small for a house which receives such distinguished guests as the Prince of Wales, it was determined to build a larger one. A new wing was, therefore, started in 1881. It had to be contrived so as to be approached without passing through the old house, which is now devoted to the servants. The north-west wing was also added, increasing the office accommodation and containing two floors of bed-rooms. At the same time the conservatory was built, and thus the approach to the chapel, under cover, is completed.

The fountain shown on the view is not in existence, but the water is laid on to it, as to the rest of the house, from a reservoir at a sufficient altitude to protect any part of it from fire.

Building has been in hand, under the charge of the writer, almost constantly since 1869; and, while these lines are being sent to press, fresh details are being sent to work from.

E. J. TARVER.



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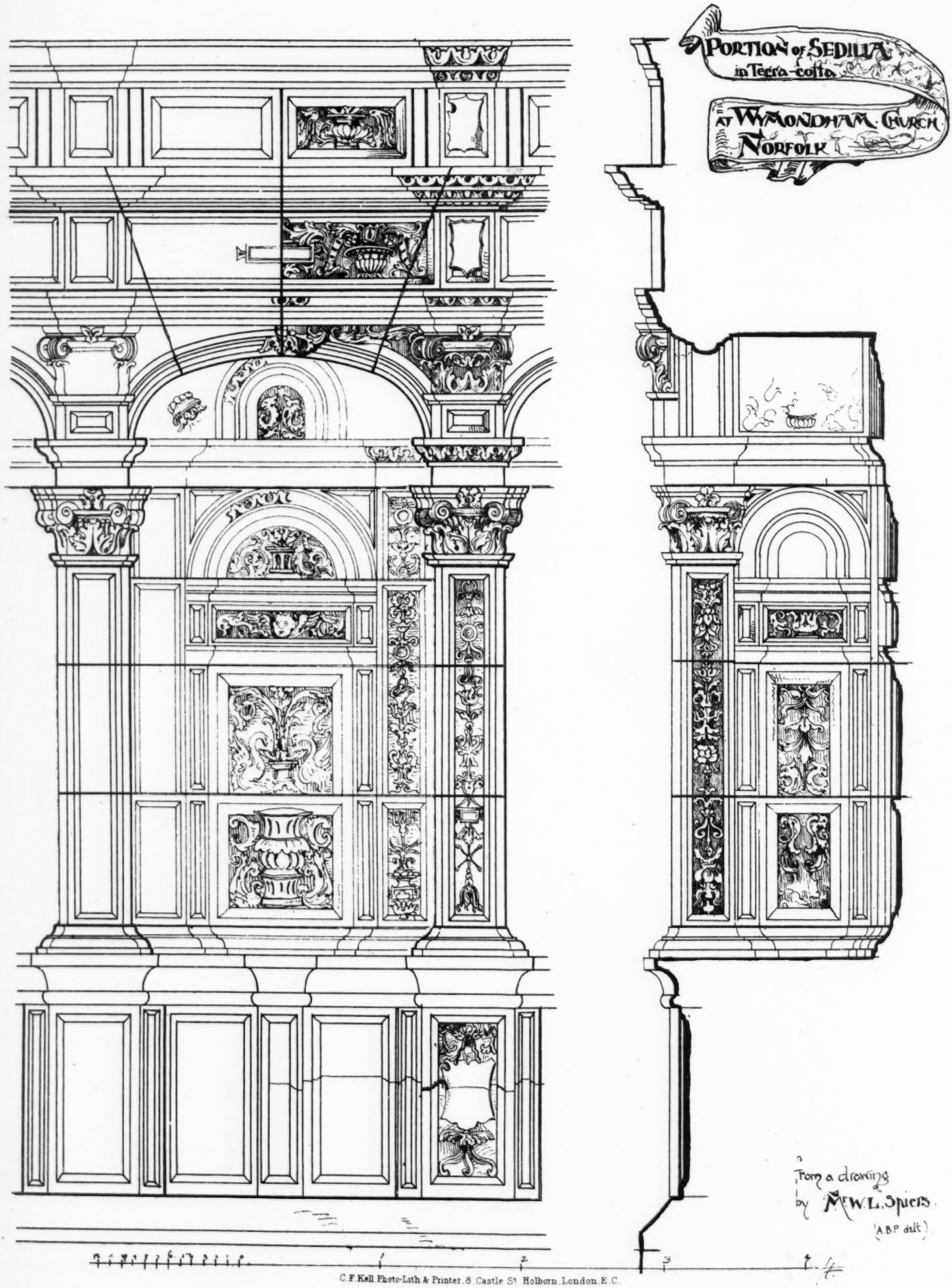
C^Queen St London, W.C

LONDON & COUNTY BANK.

PENTONVILLE ROAD, KING'S CROSS, N.

GLOVER & SALTER ARCH^TS

A.D. 1883.



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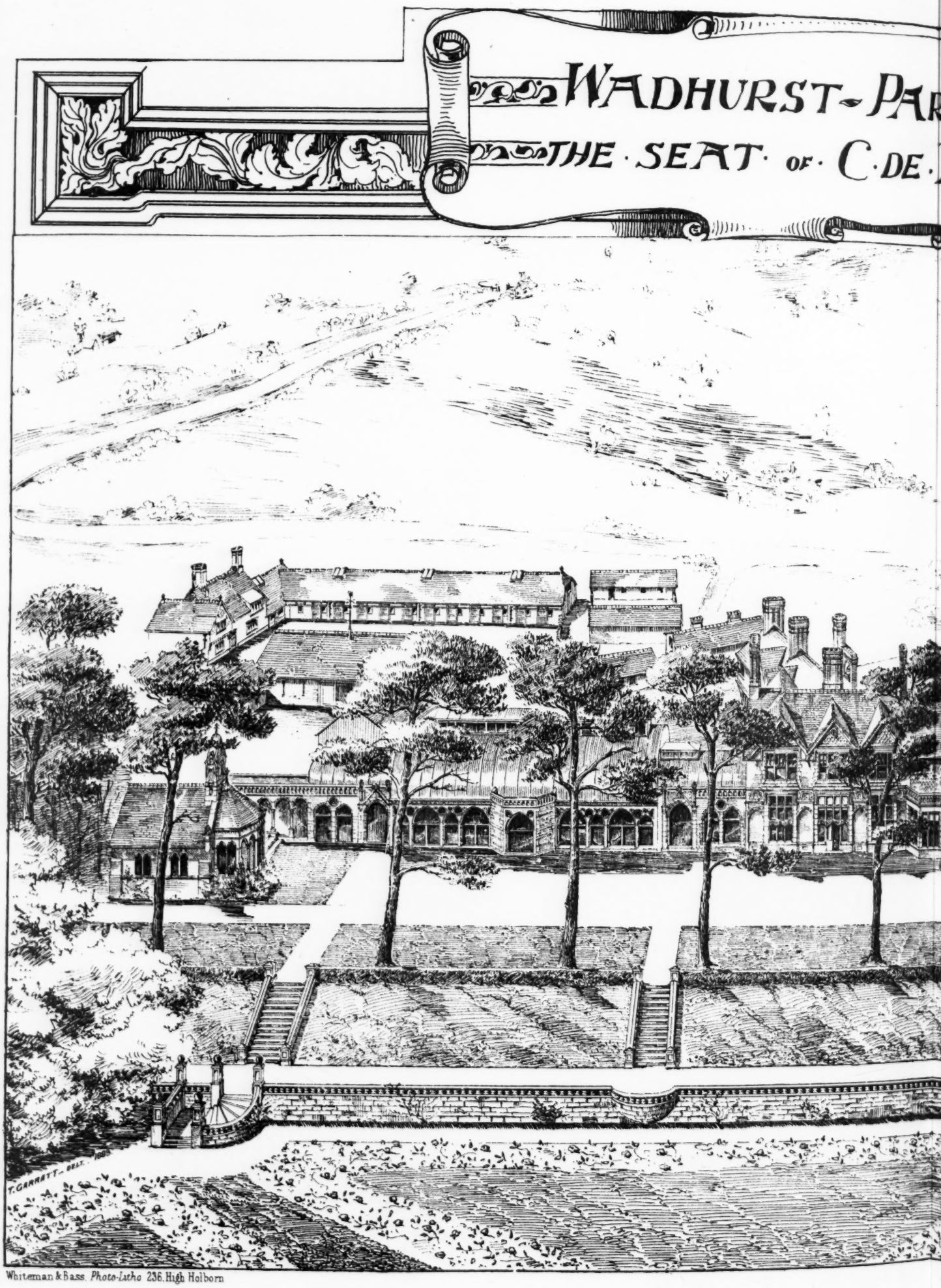

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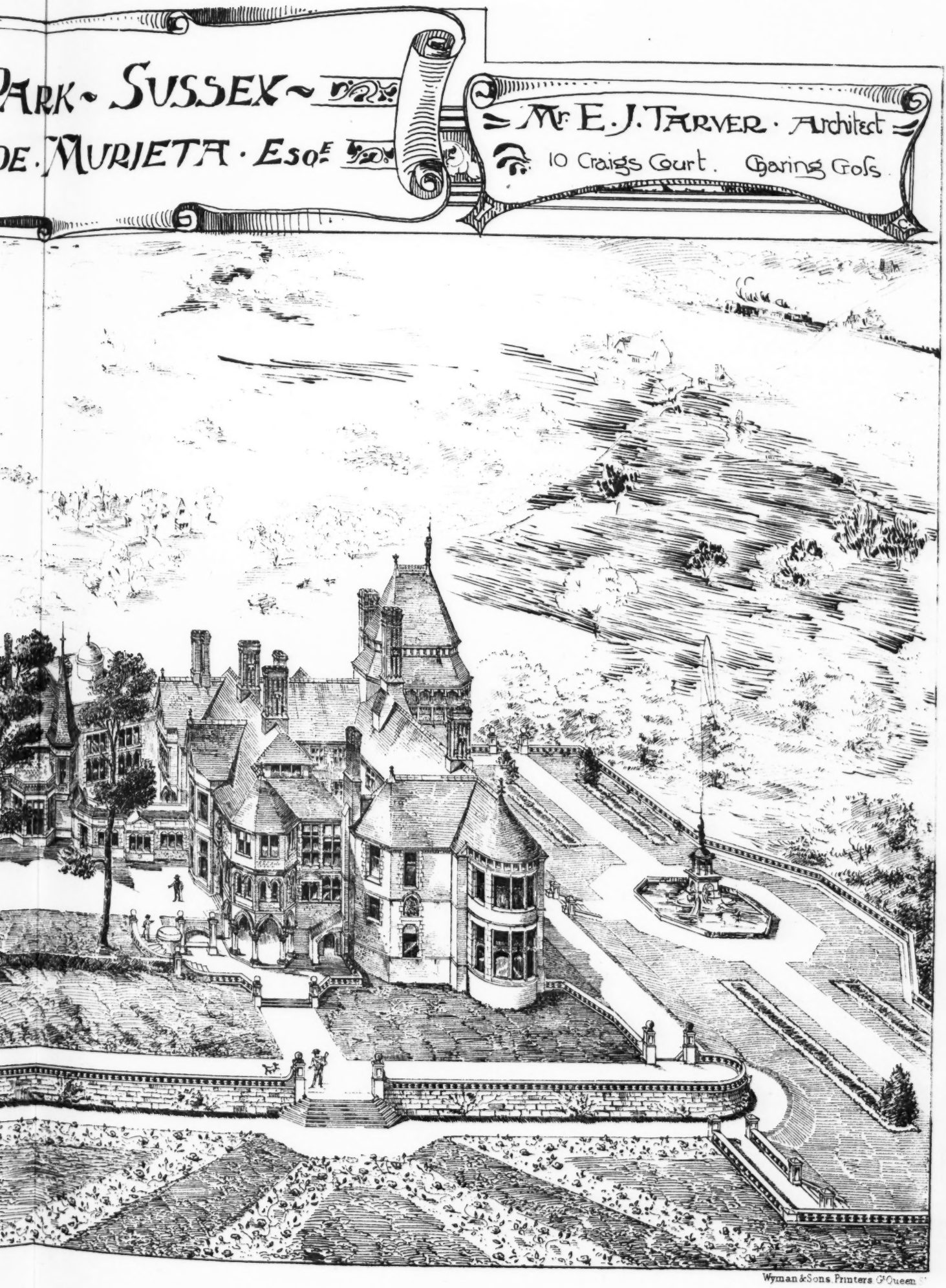
PARK ~ SUSSEX ~

DE MURIETA · ESQ^E

Mr. E. J. TARVER · Architect

10 Craigs Court. Charing Cross.



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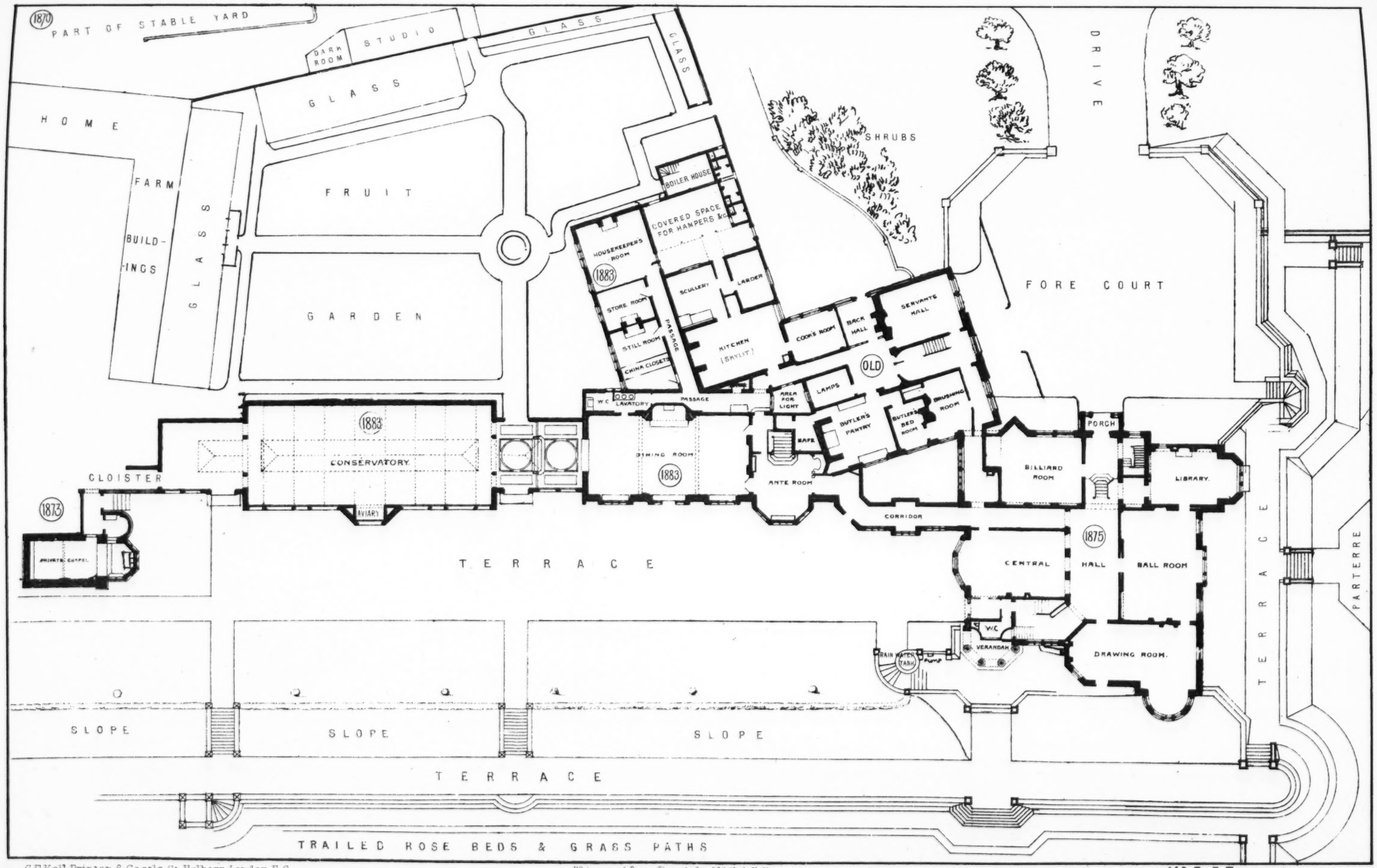
DESIGN FOR INTERIOR DECORATION: HALL AND STAIRC

C.Queen St London.WC

STAIRCASE.—Mr. Edwin William Poley, A.R.I.B.A., Architect.



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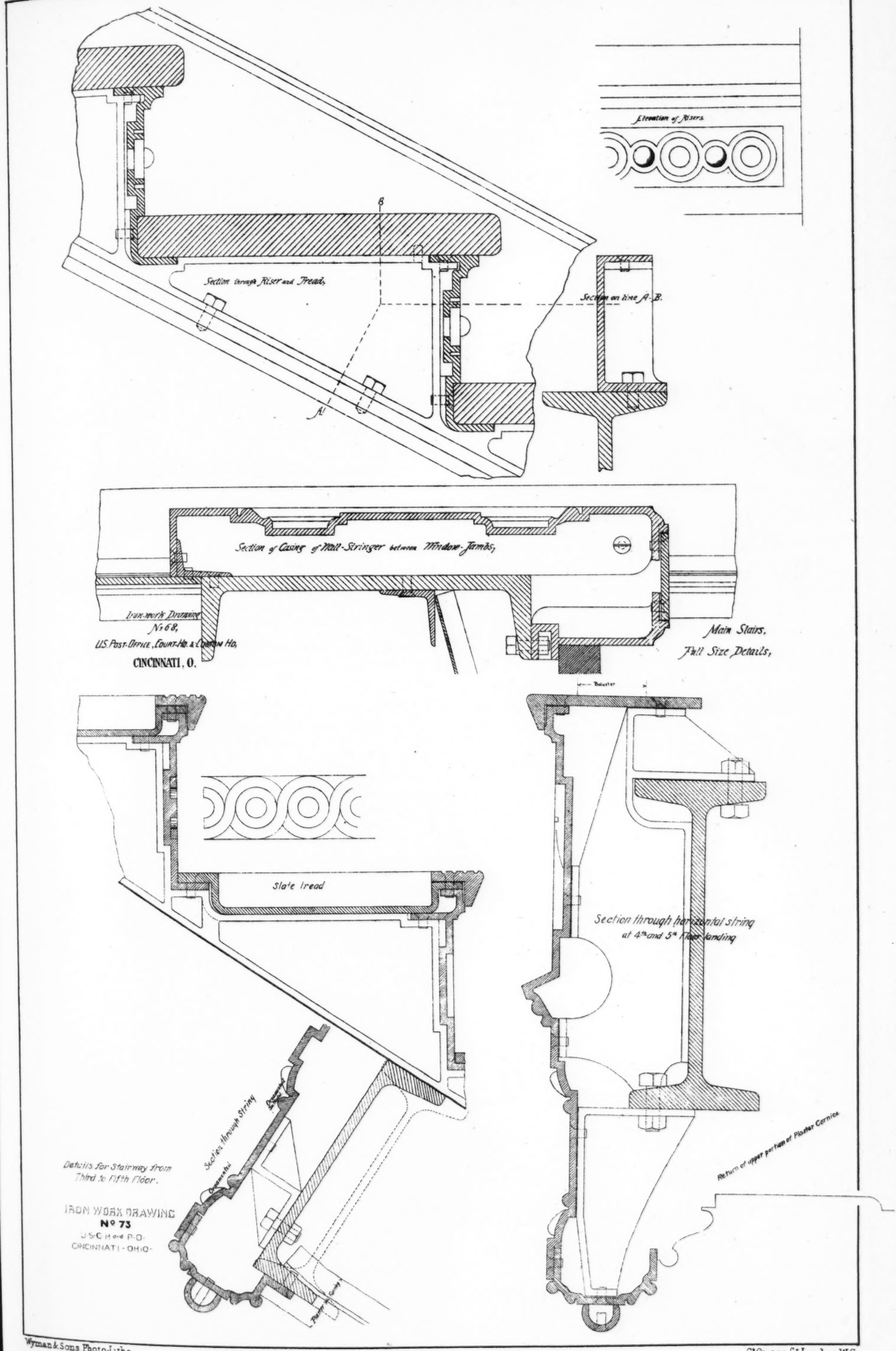
Mr E.J. TARVER, *Architect.*

WADHURST PARK, SUSSEX.



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DETAILS OF AMERICAN CONSTRUCTION.—Communicated by Mr. A. J. Gale, A.R.I.B.A.

V.—U.S. POST-OFFICE, COURT HOUSE, AND CUSTOM HOUSE, CINCINNATI, OHIO.

HALL AND STAIRCASE DECORATION.

WE give this week an original design for interior decoration, which was exhibited in the Royal Academy last year. Mr. E. W. Poley is the author. The design speaks for itself.

DETAILS OF AMERICAN CONSTRUCTION.

IN the paper by Mr. Gale to which all those detail drawings which we have published have reference, it was observed that the fireproof stairs of iron and other materials are constructed in the States with a good many varieties of detail. The present drawing shows to a large scale the details of two such stairs.

ARCHITECTURAL ASSOCIATION.

VISIT TO THE NEW CONGREGATIONAL CHURCH, HAMPSTEAD.

ON Saturday last the members of the Architectural Association made an excursion to Hampstead, this being the sixth afternoon visit this session, and the building selected was the new Congregational Church, now in course of erection in Rosslyn-grove. Upon the history and recent changes in this very interesting suburb of London it will be unnecessary now to dilate, as we have so recently expatiated on the subject in a leading article in the *Builder*, May 12th, 1883. The new Congregational Church is being erected from designs and under the superintendence of Mr. Alfred Waterhouse, A.R.A., architect, and is situated at the intersection of several thoroughfares, opposite the spacious district church of St. Stephen, which was erected from the designs of Mr. S. S. Teulon, architect, in 1872, and the interior of which many members of the Association inspected on Saturday.

The west or principal elevation of the Congregational Church faces Lyndhurst-road, and its chief features are a bold three-light window and two entrance porches. Inside one of these porches is the foundation-stone, on which is inscribed these words:—"This stone was laid by the veteran missionary, Robert Moffat, 12th of April, 1883. Thou shalt call thy walls salvation, and thy gates praise. Isaiah lx. 18." Inside the building the members were received by Mr. A. G. Cook, the clerk of the works, who explained the drawings and the church itself.

The plan of the church is hexagonal, having a clear span of 68 feet. There are galleries round three sides of the hexagon. The ground-floor and galleries will accommodate 1,000 persons. The contractors are Messrs. J. Parnell & Son, of Rugby, and the amount of the contract is 14,000*l.*, but it is estimated the building and offices will cost about 17,000*l.* when completed. On the first-floor, at the east end, on a level with the galleries, is a spacious lecture-hall, and beneath this, and behind the Communion-table, are the ministers' vestry, the deacons' vestry, and four class-rooms. The basement contains the heating apparatus, coal store, and still-room. The ground-floor and offices will be paved with wooden blocks. The church is erected and faced with Luton bricks and terra-cotta dressings externally, all in selenitic mortar. Internally the church is faced with patent tinted bricks, by Messrs. Ingham & Sons, of Wortley, Leeds; these are laid in coloured bands, and have a most pleasing effect. We understand these bricks (which are not glazed) are here introduced into London by the architect for the first time. We also understood the cost of them to be about 12*l.* per thousand. All the roofs are covered with Edwards's tiles, from Ruabon, Wales; these meet at a centre over the hexagon, and are surmounted by a lofty lantern. The windows are glazed with cathedral-tinted glass, by Mr. Luxford and Mr. Brewster, both of London. The seats, joinery, and fittings are all of pitch pine, varnished. The ornamental ironwork, gas-fittings, and pendants have been executed and supplied by Messrs. Hart, Son, & Peard, and the constructional ironwork by Messrs. Lindsay, of South Wharf, Paddington. The chief characteristic of the church is the extreme simplicity of its materials; and owing to the peculiar shape and limited area of the site, we must admit that the architect has availed himself of every foot, we were almost going to say of every inch of space, at his command.

THE ANTIQUITIES OF WISBY.

THE history of this town in Gothland has recently been treated by Dr. Theodore Gaedertz, of Lübeck, who records the fact that it was at one time the Venice of the Baltic. Old chronicles speak of golden windows and copper doors, and the extent of the town may be estimated from the fact that there now exist ruins of eleven churches. There were at one time eighteen, and the fortifications of the place were of great strength. The town suffered considerably from an attack made by the Danish King Waldemar IV., in 1361, from which time its prosperity declined. The churches were mostly built from the twelfth to the fifteenth century, and consequently the Romanesque Transition and Gothic styles are represented in their architecture.

THE SCHAUSPIELHAUS AT BERLIN.

THE *Berliner Post* states that the facing with sandstone of the façades of the above theatre is making satisfactory progress under the direction of Herr Hense, Court Architect. A year will still elapse before the whole work is completed. It is being carried out with yellow sandstone from the Rackwitz quarries in Silesia, and will be worthy of the original structure, the monumental effect of which it is intended to complete. Portions of the building had originally been of sandstone. The journal alluded to remarks that the application of paint of sandstone colour to one portion of the building is unadvisable, and maintains that, however commendable are the motives which have prompted the work now being executed, there is a much more extensive restoration necessary to do justice to Schinkel's work. This artist is said to have in his later years approved the theory of polychromatic decoration as having been practised by the Greeks, and it is suggested that portions of the interior should be treated in accordance with this principle of ornamentation.

THE NEW WEST DOORWAY OF ST. GILES'S CATHEDRAL.

THE following description of the sculpture in this doorway is given in a recent number of the *Scotsman*:—"The new west doorway of St. Giles's Cathedral has just been completed by the placing, in the niches above the arch, of a series of statues representing famous Scottish kings, queens, and ecclesiastics, some of whose names are more or less intimately associated with the ancient pile. There are twelve statues in all, including six kings, two queens, and four churchmen; the royal personages occupying the six whole and two half upper niches, while the four lower ones are appropriated to the divines. Taking first the sovereigns, and beginning at the left hand of the upper line of niches, we have them in the following order:—(1.) Alexander I., who erected, on the site of the present cathedral, the first church in Edinburgh certainly known to have been dedicated to St. Giles. He appears clad in mail, and wearing the conical helmet, with 'nasal,' peculiar to the period. (2.) David I. is arrayed in graceful kingly attire, and holds a sceptre in his right hand and a book in his left. This monarch is understood to have materially forwarded the endowment and decoration of St. Giles's. (3.) Alexander III. stands resting on a sword which is held by both hands, the countenance exhibiting the sternness and determination which characterised the hero of the battle of Largs. (4 and 5.) Figures of Queen Margaret, and Margaret, the consort of James IV., are disposed in the two half niches. (6.) Robert I. the Bruce is represented in the plate armour which began to be worn during the reign of the Conquerer of Bannockburn; the right hand rests on the Bruce's favourite weapon, the battle-axe, while the left, holding a sceptre, is supported by a shield. (7.) James I., the poet-king, appears in the ermine of royalty, with a scroll held to the breast, and a happily-caught attitude of pensive meditation, suggestive of the author of 'The King's Quhair.' (8.) James IV. displaying a banner held in the left hand, is encased in the seemingly impenetrable armour of the period. Passing to the ecclesiastics, in the lower row of niches, and commencing as before at the left, there are to be noted:—(1.) Gawin Douglas, the second Provost of St. Giles; a massively disposed figure, effectively draped, standing in thoughtful attitude, and holding in his crossed hands the pencil and paper indicative of poetic pursuits. (2.) John Knox, in the well-known Venetian gown, with beard hanging down on the chest, and hands demonstratively exhibiting an open Bible. (3.) William Forbes, the first Episcopal Bishop of Edinburgh, in the attitude of benediction, supported by a crosier held in the left hand, and wearing the mitre and appropriate vestments. (4.) Alexander Henderson, a champion of Presbyterianism against Prelacy, shown in loose-flowing robe, surmounted by a ruff encircling the neck, and holding a slightly-opened Bible in the right hand, as if in the act of argumentation. The whole work in connexion with the doorway, with its elaborately-enriched mouldings and gracefully-foliated caps, its large panel in which is sculptured 'Sanct Geill and his Hynde,' its smaller panels containing the four Evangelists, and the niches and statues above described, forms a notable addition to the architectural features in the city. The admirable design, by Messrs. Hay & Henderson, architects, has been executed by Mr. John Rhind, sculptor, in a style worthy of his well-earned reputation."

THE INSTITUTION OF CIVIL ENGINEERS.

AT the meeting on Tuesday, the 1st of April, Sir J. W. Bazalgette, C.B., president, in the chair, it was announced that the Council had recently transferred Joseph Bernays, George Cartwright, Charles Colson, William Irlam Ellis, Alan Grant-Dalton, James Charles Inglis, and Arthur Shanks, to the class of *Members;* and had admitted James Hartley Abbott, Henry Matthew John Bacon, John James Bourne Benson, Henry John Bridgewater, Herbert Alexander Caffin, Arthur Pitt Chambers Cary, John Jacob Cohen, Alfred Fawcus, John Jervis Garrard, Albert Daniel Greatorex, Bertram Jones, Cyril Edward Arengo Jones, Hugh Torrance Ker, James Percy Knight, Hubert Bindon Marten, and William Pollock, as *Students* of the Institution.

At the monthly ballot, Frederick Beesley, Westminster; Jorge Rademaker, Grünewald, Dom Pedro II. Railway; Clayton Turner Mason, P.W.D., Western Australia; and John Taylor, Queen-street-place, were elected *Members;* José Barbalho Uchôa Cavalcanti, Rio-de-Janeiro; John Henry Clemes, Falmouth; Charles Edward Goodfellow, Adelphi; Francis William Gosling, Staines; Archibald Greenlees, P.W.D., India; Frank Gotto, Westminster; Henry Charles Kirstein, Millwall; John Edmund Phipps Lincké, P.W.D., India; Francis Ronan Mahony, Cork; Charles Leslie Stewart Mais, A.K.C., Stud. Inst. C.E., Jamaica; Henry Waterworth Parkinson, Lanc. and Yorks. Ry.; George Rankin, Stud. Inst. C.E., Cape Govt. Railways; Thomas Harold Rawson, P.W.D., N.Z.; Martin Fenn Roberts, Post-Office Telegraphs; Henrique Scheid, Rio-de-Janeiro; William Acheson Traill, Electric Tramway, Portrush; and William Whittington, Neath, *Associate Members;* and Tolmie John Tresidder, Capt., R.E., an *Associate.*

EDINBURGH ARCHITECTURAL ASSOCIATION.

ON the 22nd ult. a large party of members visited Prestonfield House, Craigmillar Castle, and Peffermill, under the guidance of Mr. Thomas Ross.

At a meeting held on the 3rd inst., Mr. David MacGibbon, the president, in the chair, a paper on "Colour," by Mr. W. Scott Morton, was read. The author remarked that for some time the general tendency in our country had been to colour on a low scale, and this, he thought, was a good sign, as it evinced a desire for harmony, and the avoidance of the garish colours which recently were so familiar to us. At the same time, this low scale indicated timidity, and it was much to be wished that, with an advancing art education, decorators would give us pleasing colour on a higher pitch. Instead of the very cold and thin colours which were commonly used, some bloom and fulness of tone might be used,—they would cost no more, and the artistic effect would be enhanced. These Northern regions were, of course, unfavourable to the development of the colour sense, and the lecturer illustrated this by pointing to the results of the outstanding glory of Italy, its sunlights. We can never have in this country any such highly-coloured pictures as Venice presents; but, he added, let us be thankful for the lovely tints of the morning and evening sky, the rainbow, the rich adornment of flowers, the varied plumage of birds, the blue and purple mountains, and the soft verdure of trees, valleys, and hills; and let those who had to spend most of their days in our cities keep their eyes open to the fine pictures to be seen in dull and foggy weather, when we get massive and picturesque groups in various hues of cold or brownish grey, against a sky through which the sun is struggling to penetrate, giving us the complementary hues of warm grey, yellow, and

orange. After all, we have the grey hue generally present with us, and more particularly in our cities. When the eye is filled with grey in walks abroad, it sought refreshment indoors in its complementary; and hence varied hues of yellow could be satisfactorily used in large masses in our interiors, and when other colours were required on large surfaces for variety, they ought to partake to some extent of a warm or yellowish hue. One great difficulty in the way of advancement in house decoration was the want of technical education among the working painters. It was often found that the finished result of their work was disappointing, owing to the lack of skill in handling properly the various stages of their work, so as to give the bloom required on its completion.

INTERNATIONAL HEALTH EXHIBITION.

THE following handbooks to the Exhibition are in course of preparation:—

"Healthy Villages." Illustrated. H. W. Acland, C.B., M.D., F.R.S.

"Healthy Bedrooms and Nurseries, including the Lying-in-room." Mrs. Gladstone.

"Healthy and Unhealthy Houses in Town and Country." Illustrated. Mr. W. Eassie, C.E., with an Appendix by Mr. Rogers Field, C.E.

"Healthy Furniture and Decoration." Illustrated. Mr. R. W. Edis, F.S.A.

"Healthy Schools." Mr. Charles Paget, M.R.C.S.

"Health in Workshops." Mr. J. B. Lakeman.

"Manual of Heating, Lighting, and Ventilation." Illustrated. Captain Douglas Galton, C.B., F.R.S.

"Food." Mr. A. W. Blyth, M.R.C.S.

"Principles of Cookery." Mr. Septimus Berdmore.

"Food and Cookery for Infants and Invalids." Miss Wood; with a Preface by R. B. Cheadle, M.D., F.R.C.P.

"Drinks, Alcoholic." John L. W. Thudichum, M.D., F.R.C.P.

"Drinks, Non-Alcoholic and Aërated." John Attfield, Ph.D., F.R.S.

"Fruits of all Countries." Illustrated. Mr. W. T. Thiselton Dyer, M.A., C.M.G.

"Condiments, including Salt." Rev. J. J. Manley, M.A.

"Legal Obligations in respect to Dwellings of the Poor." Mr. Harry Duff, M.A., Barrister-at-Law; with a Preface by Mr. Arthur Cohen, Q.C., M.P.

"Moral Obligations of the Householder, including the Sanitary Care of his House." G. V. Poore, M.D., F.R.C.P.

"Laboratory Guide to Public Health Investigation." Illustrated. W. W. Cheyne, F.R.C.S.; and W. H. Corfield, M.D., F.R.C.P., M.A.

"Physiology of Digestion and the Digestive Organs." Professor Arthur Gamgee, F.R.S.

"Fermentation." Dr. Duclaux; with a Preface by M. Louis Pasteur, Membre de l'Institut.

"Spread of Infection." Mr. Shirley F. Murphy.

"Fires and Fire Brigades." Illustrated. Captain Eyre M. Shaw, C.B.

"Scavengering and other such Work in Large Cities." Mr. Booth Scott.

"Athletics." Part I. Illustrated. Rev. E. Warre, M.A.

"Athletics." Part II. Hon. E. Lyttleton, M.A., and Mr. Gerard F. Cobb, M.A.

"Dress in relation to Health and Climate." Illustrated. Mr. E. W. Godwin, F.S.A.

"The Ambulance." Illustrated. Surgeon-Major Evatt, M.D., A.M.D.

"The Influence of Schools of Art on Manufacturing Industry." John Sparkes.

"The Homes of the Poor." Author not yet settled.

PROPOSED HEALTH CONFERENCE.

DEAR SIR,—No doubt the proposed health conference will be the means of eliciting an enormous mass of all kinds of information and suggestion in regard to health. Each section of the subject will be exhaustively dealt with. Doctors and architects, philanthropists and sanitary engineers, politicians, and *literati* generally, will contribute their quota. Statistics will overwhelm the uninitiated, and a flood of oratory will, by the aid of the press, flow north, east, west, and south. Congratulations will be offered and accepted, prizes awarded and withheld, each one of the members will hie him to his wonted pursuits, the dust of that conference will be swept away, the doors of that conference-hall will be closed, the door-keeper will seek other employment, and yet the great unwashed will remain unwashed, and filthiness still boldly assert itself in most instances; for I sincerely trust some good may accrue, and that the leaders of the movement, by their precept and example, may, during the remainder of their lives, demonstrate the soundness of the decisions come to.

I have written the above with a vivid recollection of another conference, and the momentous consequences which followed. On the 30th of January, 1878, the following was published:—

"NATIONAL WATER SUPPLY.

Clarence House, St. James's, S.W.

SIR,—The supply of pure water to the population is, at the present time, exciting deep interest throughout the country. Our great cities and populous towns, such as Manchester, Liverpool, Birmingham, and others, are, each for itself, taking steps to obtain an improved and increased supply, whilst the metropolis is seeking further powers from the Legislature with the same object in view. The smaller towns and villages are dependent on accidental sources of supply, and in many instances these are wholly inadequate for health and comfort. While the larger populations are striving, each independently, and at enormous cost, to secure for themselves this article of prime necessity, the smaller localities must make the best shift they can, and, in many instances, are all but without any supply at all.

Under these circumstances, I would draw the attention of the Council to the subject, and suggest whether, at the present time, great public good would not arise from an open discussion of the question in the Society's rooms, with a view to the consideration of how far the great natural resources of the kingdom might, by some large and comprehensive scheme of a national character, adapted to the varying specialities and wants of districts, to be turned to account for the benefit, not merely of a few large centres of population, but for the advantage of the general body of the nation at large.—I have the honour to be, sir, yours faithfully,

ALBERT EDWARD, P.
President of the Society of Arts.

To the Chairman of the
Council of the Society of Arts."

Acting upon the suggestion of his Royal Highness, a conference was duly held at the house of the Society of Arts, and the whole subject in all its bearings pretty well exhausted.

I believe a Parliamentary Committee was even formed, but what they advised, or how far the advice, if any, was acted upon, his Royal Highness may know. I do not think the general public do, and I should imagine he must be somewhat surprised at the small amount of good which has resulted from the advice tendered, and proposals then made. However, having failed in his front attack, like a plucky general he is now attempting a flank movement, and those who wish their country good must wish him success.

I apprehend a "health conference" must tackle the water question. The writer of the letter I have quoted says, "that the accidental sources of water supply in many instances are wholly inadequate for *health* and comfort."

Now when we have provided for every house an abundant supply of pure water, at all times and at all seasons; when we have ceased to poison our brooks, rivers, and wells; when our seaside health resorts can provide bathing-places, in which we are confident the sewage from the house we have slept in is not undergoing deodorisation in the fluid which surrounds us in our morning swim, we shall have considerably narrowed the health question, and reduced it to limits more easily dealt with. But whilst our supply of water each day is becoming more inadequate in quantity, and more poisonous in quality; when the boldest temperance advocate or the most stanch teetotaler would offer up a prayer for his soul if he had to quench his thirst from the nearest brook or river, before the water had been properly "*manipulated*," we cannot congratulate ourselves upon having solved this problem of health.

Given pure water in our houses, uncontaminated water-courses and lakes throughout the length and breadth of our land, the remainder could be accomplished, as far as any human enterprise can be accomplished. It would rest then more with the individual than with committees of ways and means.

"If every man would see to his own reformation,
How very healthy we should all be as a nation."

As I have slightly altered the original, this jingle illustrates my meaning.

As a nation we must do something more for the individual. Pure water, prime necessity as it is, requires other accompaniments. Pure food, and plenty of it, is also requisite if we desire to turn out a healthy man, capable of performing the duties of citizenship,—that is, performing his allotted labour well and faithfully. We shall not find the difficulty so great in giving pure food as in giving pure water. Adulteration of every article of consumption must, and can, be put down with a strong hand, the strong hand of the law. In England, the machinery for the furtherance of this great object has been provided; but whether such machinery is of the best description, or whether it cannot or will not work, one great fact remains,—it does not. They do these things better in Gaul than in perfidious Albion (*verb. sap.*). Cannot we take a lesson out of our neighbour's book without blotting the page or smudging our own fingers? I think we might. Take bread, for instance. How marvellously strange it is that no two bakers give you the same article for the same money. The flavour, the quality, or the *get-up* are all different. Alum, yeast, German yeast, patent yeast, bone dust, lime dust, *pure* dirt, potatoes, beans, peas, and, I apprehend, anything that can easily and cheaply be reduced to a white powder may,—I do not say do,—account for this; but, why on earth the staff of life should be so whittled and weakened, and have so many knots and splinters in it, when it might be fair, smooth, and strong, is a question requiring an immediate answer. I say, because the administrators of the law do not do their duty. If they have not sufficient powers they should say so, and obtain them.

Can we expect healthy flesh and blood from impure sources? Some doctors say yes, and that one of the articles I have enumerated above will kill when incorporated with a loaf of bread. I would rather have the unadulterated article, and when I payfor it I ought to get it.

We admit the premises of pure water, pure food, ample water,—yes, ample water is a prime necessity; then ample food is a prime necessity; for one cannot sustain health without the other. We are not simply talking about keeping life in the body. This matter of ample food enters into the policy and polity of the nation, and here we have Scylla and Charybdis before us; we will avoid both, and assume that pure and ample food, as well as pure and ample water, are provided, and well within the reach of all. Then we might pause to reflect that the fact of our having given pure water to the nation has very considerably increased our food supply. Our brooks, rivers, and lakes would abound with fish. We should have solved the question of sewage disposal, and this would mean the fertilisation of our land, not simply by pouring over it the liquid which now runs through our drains to poison the land instead of fertilising it, but by a scientific use of the products to several purposes, obtain the greatest amount of good from each.

From all I can gather, deodorised sewage is positively injurious to land, after a few applications; and when we bear in mind its composition, we cannot be surprised at "sewage poisoning." To start with, human excreta, urine, and soap-suds, from any source, used properly, would render land as productive as could be wished; but we dilute with water, and add from our streets pounded granite, asphalte, lead from flats and pipes, lead mixed with colour, leather, iron, wood fibre, zinc, and other matter which no Cockney, however ignorant he might be, would use, if he knew it, for his back-yard kidney-beans, or his tray of mustard and cress.

We will now suppose that cement or artificial stone is obtained from the sediment of street sewage, and that, by a proper system of working, such fertilising materials as urine should be conveyed direct to our land by separate machinery, that the abominable water-closets which now endanger every house have been swept away, and that poisonous sewer gas is a thing of the past,—that, in fact, instead of using water to poison it, to again poison our streams and wells, we save it, and at the same time save many millions a year, and gain many millions besides. Health will be well within the reach of all.

Now education must do the rest. Each man, whatever his condition, must be taught how to use and not abuse the blessings which surround him. Man cannot be kept clean by Act of Parliament; he can in one way or another be so careless of even the first principles of life as not only to endanger his own, but the life of his neighbour; besides drunkenness, gluttony, uncleanliness, and immorality sap health and destroy it.

It may be well to consider in another communication the houses, homes, and habits of the different classes of our population, and to endeavour to see if our health may not be humanly assured, without the building of special cities of health or the entire reconstruction of those

we now inhabit, and what share the architect may have in providing cheerful and healthy dwellings.

MARTIN UNDERWOOD.

Devonport.

P.S.—The doctors have given us such horrors in their descriptions of what is found and can be seen in water that no sooner has paterfamilias the wherewithal to purchase a microscope than he obtains one, and makes his own blood and that of all the members of his family run colder than the water he is examining, by exhibiting the horrible organisims with which the water literally teems. Can it be surprising that he eschews water, raw and cold, for his own use?—that he prefers it mixed with a little something "short," to counteract the insanitary qualities of such animalculæ?—that his eye and his palate prefer Bass?—and that Guinness in the bottle or draught, simply for health sake, has the preference, dark as it may be in colour? The head of the family, so thinking and acting, has his disciples in all the other members, great and small. It is useless to say drink milk and water: the two combined are certain death, for if the poison is not in the water it is assuredly in the milk. Thus temperance is heavily handicapped, that temperance so conducive to health and strength, and an undue use of stimulants encouraged and fostered.

M. U.

"A SYSTEM OF NATIONAL WATER REGULATION."

SIR,—I hope you will allow me to correct a misapprehension which occurs in your courteous review [p. 432, *ante*] of my paper on "A System of National Water Regulation," read at the Society of Arts on the 12th of March. I did not, as you seemingly suppose, suggest as a remedy for floods the storage of 8,760 million cubic feet, but only of that proportion of a maximum flood which the River Thames is unable to carry off within its natural banks. From the only data available I assumed as a maximum discharge 20,000 cubic feet per second, and the river to be capable of carrying off three-fourths of that volume harmlessly, leaving one-fourth, or 5,000 cubic feet, per second, to be regulated by storage reservoirs. If the maximum discharge is maintained for seventy-two consecutive hours, then the quantity for which storage would have to be provided would aggregate 1,300 million cubic feet, requiring, with an average depth of 20 ft., only 1,500 acres, or 2¼ square miles of reservoir surface, an area which, when distributed over the fifteen principal distributaries of the Thames, should prove neither difficult nor costly to obtain. In order to show that the expenditure need not be unproductive, I adduced statistics,—first, as to the requirements of the entire population of the Thames basin in regard to domestic supply, and next as to the improvement of the navigation of the river itself during the period of its minimum flow. To satisfy either of those purposes would require a volume of water six times greater than would be necessary to retard the excess in a maximum flood. It is surely, then, quite within the limits of practical and financial engineering that a volume of 1,300 million cubic feet may first be stored, and afterwards be profitably disposed of. Dr. Frankland stated in his lecture on the 17th of March that the *daily* quantity of water supplied to London amounted to 145 million gallons, equal to 23 million cubic feet, or an aggregate of 8,395 million cubic feet in the year. To assume, therefore, that one-sixth of that quantity may eventually be dispesed of with profit amongst the towns and population of the entire Thames basin is surely not unreasonable.

It is perfectly true that in heavy rains, when the ground has become thoroughly saturated, nearly the whole quantity falling flows off the surface, and requires to be carried off by the river. It is exactly such a condition that occasions a maximum flood; but that flood is itself an exact gauge of the quantity of rain that has fallen, and therefore, if the discharge of a maximum flood and its duration is known, the rain actually shed off and which has produced that flood is also known, and so the utmost quantity which has to be provided for is absolutely determined. The real question, therefore, hinges on what is the volume discharged by the Thames in a maximum flood, and the number of consecutive hours for which that volume is maintained.

I have not been able to find anywhere an authoritative measurement of a maximum flood above Teddington Weir, but I have been informed that a measurement made by the Cooper's Hill students at a bridge near Windsor, during a very high flood in 1875, gave the volume as 14,100 cubic feet per second. Adding a proportionate quantity for the affluents falling in between that bridge and Teddington Weir, which increased that volume to 18,000 cubic feet, my calculation of 20,000 cubic feet per second is, therefore, an excess on the safe side; but if I have allowed too little I shall be glad to be corrected, and informed of the greatest discharge which has ever been actually measured. A flood of 20,000 cubic feet per second maintained without any variation for seventy-two consecutive hours would discharge in that time 5,184 millions of cubic feet, and as the area of the Thames basin above Teddington measures 3,676 square miles (according to the Rivers Pollution Committee's report), or 102,481 million square feet, the above volume would be equivalent to ·6768 in. flowing off the whole area. The rainfall producing that flow would depend on the proportion of it that was absorbed. The fact is that a heavy storm rarely falls over the whole of any considerable area at the same time, but travels more or less quickly over it in a direction which is governed by the prevailing atmospheric conditions.

Hence floods in the Thames, as in all rivers draining large basins, are the result of storms of rain falling over only a certain portion of them, and therefore the fact of 3 in. of rain in a day at Banbury or any other particular town is no gauge of the quantity falling on the same day over the whole basin, or even over any considerable fraction of it, and therefore can be no guide as to the possible volume which the river may have to discharge in consequence.

The basis of all calculations in regard to maximum floods must be the actual measured discharge at the extreme height, and the time of its duration at that height. My suggestions are based, not on the storage of any given number of inches of rain, but of a definite proportion of the measured volume of a maximum flood, which is the fixed product of two relatively variable factors,—rainfall and area.

As I have apparently failed to convey a clear idea of the method by which a system of regulating reservoirs in connexion with floods may be worked, I would ask your permission to add a few words of explanation thereon. In a country like England, where careful meteorological observations are kept throughout its length and breadth, there can be no difficulty in ascertaining the exact rainfall over any particular area, or in tracing the path of particular storms which have occasioned the highest floods recorded of its various rivers, and so in arriving at the probable direction which future storms occurring under similar atmospheric disturbances are likely to follow. With the scientific aids afforded by the telegraph and telephone for simultaneously recording, measures which without such aids would formerly have had to depend more or less on probabilities may now be adopted with confidence on certainties. Hence I fail to see why the storage of the excess waters of a maximum flood, if properly designed and adjusted, may not be regulated and manipulated with absolute precision.

Of course the reservoirs, which would only begin to be filled as soon as the rise of the flood in the main river approached the limits of overflow, would never be left full, but would commence to discharge their contents successively as soon as that flood began to abate, and they would thus be always kept ready against the arrival of the succeeding flood during that period of the year when storms prevail. After that period has passed, the reservoirs may be permanently filled for after distribution to any of the many purposes for which their water may be required.

The system of minimising the effects of floods by the help of storage reservoirs is only an imitation of the processes we find where Nature works on a large scale, as, for example, in the great lakes of Equatorial Africa, in America, and in the lagunes of Australia; and on a smaller scale in the lakes of the United Kingdom. Some of the greatest engineering successes as well as discoveries have been the result of a careful study of natural operations, and this particular method of regulating floods is no exception to the rule. If the English lakes were capable of discharging a portion of their contents from the summer level as soon as their surfaces commenced to rise above it, instead of *after* they have become filled to the level of their overflow, the rivers supplied by them need never be subjected to floods. Just in the same way may simular works, only on a smaller scale, be adapted to the principal tributaries of a river like the Thames, by adjusting the surface area of the reservoirs, and the size of the discharging outlets in the proper proportion to the maximum discharge of the tributary itself.

I will not enter further into engineering details, for I feel I have already trespassed too much on your space, and I will, therefore, only add my obligations to you for permitting me to occupy so large a portion of your columns.

F. H. RUNDALL,
Lieut.-General, C.S.I., R.E.

THE SANITARY INSPECTION OF DWELLINGS.

SIR,—I consider it important that attention should be drawn to the "Sanitary Inspection of Dwelling-houses Bill" now before Parliament, and noticed in your issue of the 22nd ult. [p. 397] as a matter deserving of serious consideration, affecting, as it will do, the sanitary administration of local authorities, and the power of their chief officials.

Whilst the main purpose of the Bill,—in regulating and enforcing the sanitary construction and supervision of new buildings, and giving additional power to local authorities in cases of nuisances arising from defective drainage and house construction beyond those contained in the Public Health Act, 1875,—is commendable, and its adoption desirable, yet, when the examination of and reporting upon the plans of new buildings, the inspection of buildings during erection, and the granting of certificates upon their completion, as well as the power of entry upon premises to open ground and do other works necessary for the examination of defective drains and faulty building construction, and afterwards *making good* the same, are removed from the town surveyor to a sanitary inspector, it will be manifest that some amendment of the Bill is essential.

Apparently, it is not intended that professional men should be employed for this purpose, or undoubtedly it would have been so stated, and it would be altogether out of the question to suppose that a local authority, unless compelled, would saddle itself with the additional expense which such an appointment would incur, when, in all probability, a duly qualified professional man is already engaged as surveyor in the district. But the surveyor, who not only should be the responsible head in matters of this kind, but actually is, excepting in large towns where an efficient engineer's staff is maintained, the only official qualified to examine and advise upon the structural works, will be entirely ignored by the provisions of the Bill, and important and responsible work requiring careful examination and direction entrusted to new and inexperienced officials, who necessarily must be subordinate officers.

"I am not a surveyor," said the sanitary inspector of a not unimportant local board district, when in course of examination before a bench of magistrates recently, "and therefore cannot say how the drain should be constructed to prevent sewer-air entering the house"; and when we consider the class from which sanitary inspectors are usually selected, it is not to be wondered at that he could not venture an opinion upon a subject of a technical character, nor would it be reasonable to expect such work from any inspector.

Clearly the Public Health Act, in its present form, is too general in its application for modern requirements, and some more definite legislation is needed; but why not simply amend the Public Health Act, 1875, by embodying in it a revised form of the model by-laws issued by the Local Government Board?

At all events, it is very important that "Surveyor" should be substituted for "Sanitary Inspector" in the Bill; or that, at least, it should be clearly set forth that the inspector shall be under the direction of the town surveyor, to whom the inspector shall report as occasions require.

The compulsory adoption and enforcement of the model code of by-laws already referred to would have rendered further legislation unnecessary.

ROBT. S. SCOTT.

Ventnor, I.W., April 2nd, 1884.

ADMIRALTY AND WAR OFFICES COMPETITION.

SIR,—After five months' hard work about 130 architects (and firms of architects) competed for these buildings; the drawings were sent in on the 1st of March. It must have taken two days to hang them. There were five Sundays in the month; and the result was made known in the morning papers of the 1st of April. Now, supposing the judges worked up to late on the 31st of March, they got through their labours in twenty-three days. I reckon that each set of designs contained six plans, three sections, and three elevations, or 1,560 most elaborate drawings, and 130 reports. Considering that EACH judge is supposed to have conscientiously examined the *whole* of the drawings, it is a mystery how Mr. Shaw-Lefevre, Mr. Childers, and Mr. W. H. Smith could have found time from their Parliamentary duties for the work; and how each of the five could in so short a time have agreed upon the nine selected designs. Anyhow, I am sure the rest of the competitors will agree that the decision was a most hasty and unexpected one; and they will all refuse to believe that they have been fairly treated, unless an exhibition of the whole of the designs can be managed after the second competition has been decided upon. Having done the whole of my drawings myself, I know how impossible it would be for any man to *understand* in twenty-three days the whole of the designs submitted; and as to five men understanding them, and all agreeing as to the best one, it is an impossibility, unless they made some arbitrary rules of their own which might exclude three-fourths of the lot without examining them.

A COMPETITOR.

THE CONSTITUTIONAL CLUB.

SIR,—May I ask you to be good enough to correct a mistake in your last issue as to this building, now in course of erection from my designs in Northumberland-avenue? By special permission of the Metropolitan Board of Works it will be faced entirely with red and buff terra-cotta, interspersed with glazed faïence panels, and *not* with stone. I may add that I am indebted to the courtesy of the members of the Board, and to the recommendation of their architect, Mr. Vulliamy, for the permission to depart from traditional rules, and to substitute for stone a material which I believe to be specially suitable for all buildings subject to the deleterious influences of smoke and chemical impurities of town atmospheres.

ROBERT W. EDIS,
Architect, F.S.A.

14, *Fitzroy-square, W.*,
April 5, 1884.

*** We readily insert this, but the mistake was not ours. We quoted the source of the paragraph in question.

"ANCIENT LIGHTS."

SIR,—I think if your correspondent "Ignorans" [p. 461, *ante*] had read the cases carefully he would have noticed how different they are; but it is no doubt very difficult to follow complicated cases, and I will with pleasure try to give fuller explanation.

Former owner, whom we will for brevity call Z, conveyed one tenement to A, who enlarged his windows with the knowledge of Z; afterwards Z conveyed the adjoining tenement to B.

B estopped, because the outlay by A was made with the knowledge and consent of Z, and therefore B could not possibly have greater right than (former owner) Z, and it is clear Z could not bring any action, having given his consent.

Therefore, it will be seen that in this case the law is very simple. The decision upheld the doctrine that a man can only give or grant what he possesses, and as by his grant to B he had deprived himself of certain rights of lights, therefore he could only grant subject to such easements.

Now as to the second case quoted. The case is totally dissimilar to the preceding. It is a case where, at one and the same time, a person (say Z) grants portions of an estate to, say A and B. Now the judgment was based on the fact that in granting or conveying portions of the estate, no easement was mentioned, and, therefore, as one part of the land had not acquired ancient light against the other part, by reason of there having been only one owner, namely Z, of the whole, no right of light existed at the date of sale.

Your correspondent will, therefore, see how different the two cases are. Of course I am not defending the decisions; that is not my province; I merely give the legal decisions, as those alone are valuable as a guide.

BANISTER FLETCHER.

29, *New Bridge-street, E.C.*, April 2.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

SIR,—In common with all Associates I have read with much interest Mr. McLachlan's letter in your issue of the 22nd ult.

The Institute has a grand opportunity, now in its jubilee year, of reforming its charter, and giving to the Associates a much better position than that which they now hold. It is, indeed, no uncommon thing for members to be asked, "What is the use of your Associateship?" And I confess that it is difficult to give a satisfactory answer.

It has been shown that this class of members contribute very largely to the funds by their entrance fees, and to the income by their subscriptions. In return they get but little encouragement, and hence we hear of some talking about leaving, and of others forming a new society. This should not be. The Council must be aware that there is a widespread feeling of dissatisfaction among the Associates at their position being not more fully recognised, and they will, I hope, devise some means by which the privileges of the Institute may be extended to them. We cannot, and do not, expect to have rights to the extent which Fellows enjoy, but we ask nothing unreasonable when we request that a PROPORTIONATE amount of such rights and privileges may be accorded to us.

I am sure that if the Council will take this matter seriously in hand, the separatists will no longer be heard of, the Institute will take the position which it ought to, and the Associates will loyally support it.

SIDNEY YOUNG.

STANDARD THEATRE.

SIR,—As you published [p. 459] the requirements of the Metropolitan Board of Works, and a report of the arbitration, your readers may wish to know the result.

My clients proceeded to make some of the alterations immediately they received the notice, and undertook to comply with many of the requirements, so that only two or three points really remained for Sir Henry Hunt to deal with.

The first point in dispute was the enclosing of certain staircases with brick walls as stated in the fourth requisition, and the arbitrator has decided that wrought-iron grilles are to be securely fixed to the said staircases instead of the existing hand-rails.

The second point, an additional staircase to the gallery, has been ordered by the arbitrator, although the existing staircase is unusually wide.

The third and last; the separation of the scene-dock from the stage and the scene-dock from the property-rooms (under the railway-arches) has not been confirmed by the arbitrator.

It will thus be seen that while the requirements of the Metropolitan Board are, in the interests of the public, very thorough and comprehensive, the owners of the Standard Theatre have endeavoured to do their best, regardless of expense, to render the theatre one of the safest in London.

HENRY LOVEGROVE.

26, *Budge row, E.C.*

UNAPPROVED DESIGNS.

SIR,—A "C. E." (also described as an architect) is engaged upon a cemetery competition, and agreed to pay me a certain sum for complete designs for two chapels, upon condition that these should be "submitted" to him in pencil before inking in; and further, that the whole should be delivered by a fixed date. In the event of success a bonus to be given in addition. I duly forwarded the pencil designs, but they were returned to me with serious alterations, my work being rubbed out and obliterated, very roughly-scribbled sketches and written notes being substituted. I propose to sue for compensation upon the ground that, if not approved, my drawings should have been returned in good condition, and either have been declined altogether or have been accompanied by suggested alterations upon tracing or other paper, the property of the objector. I am maintaining also that the alterations were so unreasonable in nature and extent that no one could have finished them by the time agreed upon, even if so disposed.

I shall feel obliged to any who can give information respecting cases of a kindred nature that have come before the law courts. It would be clearly wrong of a patron to daub over an artist's picture if disapproved of, and I consider that an architect is, in this respect, similarly situated.

A.R.I.B.A.

KEEPING NOTES.

SIR,—Your article, "Where to Turn," in the last number, emboldens me to put a question, which I have often been on the point of putting to your readers. Of the three price-books to which you direct notice, — Laxton keeps steadily to *Keene's* cement,—a way of spelling the name which seems to have the authority of manufacturers' circulars, whereas the others indulge in variations such as Kean's, Keen's, and occasionally Keene's as well.

Is some one,—this was the question I meant,—keeping notes about Keene, Martin, Pether, Moore, Claridge, &c., whose names will by chance become as fixed in the language as that of Macadam? I do not claim for Mr. Keene any special honours,—most of us who make money out of our inventions are content with that simple reward,—but future dictionary-makers and writers in *Notes and Queries* deserve some consideration. What a sense of human nature at large being foiled chills our feelings when an editorial note informs the world that "every effort to trace the origin of this seems to have failed."

A QUERIST.

ANTS IN HOUSES.

SIR,—It is well known that many London houses are infested with ants. If any of your numerous readers would give their experience in effectually dealing with the little pests, it would be a boon to many, amongst them your inquiring

SUBSCRIBER OF TWENTY YEARS.

A CAUTION TO BUILDERS.

AT the Wandsworth Police Court on Friday, the 4th inst., Mr. Charles West appeared in answer to a summons taken out by the Wimbledon Local Board against him for erecting a new building within a distance of 10 ft. from another building in the Lower Worple-lane, Wimbledon, without causing the external wall of such building to be carried up so as to form a parapet 1 ft. at least above the roof or gutter adjoining such external wall. Mr. Whitfield appeared in support of the summons. Mr. Cooper, assistant surveyor, was called, and proved the infringement of the by-laws. The defendant contended that he had not completed the building, as he intended to carry the upper portion thereof over the 4 ft. passage adjoining, so as to connect his building with the house on the opposite side of the passage.

Mr. Paget held that the defendant had contravened the by-laws, and imposed a fine of 40s. and 2s. costs, and pointed out to the defendant that he was liable to a penalty of 40s. for each day that the necessary works were not carried out.

The fine and costs were paid by the defendant before he left the court.

PAVING APPORTIONMENTS.

WILKINSON *v.* COLLYER.

THIS case (tried in the Queen's Bench Division on the 31st ult., before Mr. Justice Manisty and Mr. Justice Watkin Williams) raised an important question as to the liability of a tenant to recoup the landlord a proportion of the sums the latter may have been called upon to pay towards the expenses of paving the street in which the house is situate. The plaintiff in this case was the owner of several houses in a street in Peckham, one of which was let to the defendant on a three years' agreement at a rent of 38*l.* per annum. The houses were built some thirteen years ago, and recently the Vestry, under the powers given to them by the Metropolitan Management Acts, had paved the street and had apportioned the expenses of so doing among the owners of the houses in the street. By the defendant's agreement of tenancy he had agreed to pay all the rates, taxes, and assessments that might become payable in respect of the house during the term, except landlord's and property tax, and the plaintiff contended that under this agreement the tenant was bound to repay to him the sum he had been compelled to pay in respect of the house for the paving of the street, and accordingly sued the defendant for the amount, 26*l.* 17s. The action now came on on motion for judgment on admissions on the pleadings.

Mr. Justice Manisty, in giving judgment against the landlord's contention, said that by the Metropolitan Management Act, 1855, it was provided that if the owners of the houses in a street did not pave the street to the satisfaction of the Vestry or Local Board, the Vestry or Board might do the necessary work, and recover it from the owners of the houses; and by the amending Act of 1862 the expenses which the owner of a house might be liable to pay under the existing Act might be recovered from the owner or occupier, but if recovered from the occupier, the amount was to be deducted out of his rent. That appeared to his Lordship to create a charge upon the owner for something done in the nature of a permanent improvement to his property, and not such as should be paid for by the tenant, who might have only a tenancy for one year, and yet be liable for the whole of this expense. If, however, the tenant had expressly contracted to pay he would, of course, be liable; but in the present case,

his Lordship said, he had not done so; such a charge was not a tax, rate, or assessment within the meaning of his agreement.

Mr. Justice Watkin Williams gave judgment to the same effect.

Judgment for the defendant.

PROVINCIAL NEWS.

Bristol.—Mr. F. C. J. Fisher, umbrella manufacturer, has lately rebuilt his premises, Nos. 29, 31, 33, and 35, Union-street. The fronts are of red brick, relieved by dressings of Bath stone. The work has been carried out by Mr. R. F. Ridd, builder, of 32, Moon-street, the architect being Mr. Thomas Nicholson, of Guildhall Chambers, Broad-street.——In the neighbourhood of Canons' Marsh a new road has been formed by the waterside, from St. Augustine's Parade as far as Anchor-lane, with an easy gradient from College Green. A portion of the site of Green's Dock has been let by the Corporation to Messrs. Rowe Bros. & Co., who are proceeding with the erection of extensive premises, to consist of offices, warehouses, and lead-rolling mills. The premises, as at present arranged, will cover a site about 220 ft. in depth and 50 ft. in width. The architect appointed by the firm is Mr. Herbert J. Jones, of Wellington Chambers, Bridge-street, under whose directions the foundations are now being put in by Messrs. Howell & Son, builders, at a cost of about 570*l.* The tender of Mr. T. R. Lewis, amounting to 3,795*l.*, has been accepted for the works.

Baildon.—Captain R. C. T. Hildyard, one of the Local Government Board Inspectors, held an inquiry on the 26th ult. at the offices of the Baildon Local Board, with reference to the application of that body for the sanction of the Local Government Board to borrow 1,336*l.* for works of sewerage, water-supply, street improvements, and lighting. It was stated that the population of the board's district was 5,430; annual rateable value, 14,117*l.*; acreage, 2,604; present debt, 12,392*l.*, mostly borrowed from waterworks. It is proposed to lay an 18-inch sewer pipe from the railway to Brook-hill, and the inspector strongly advised the board to construct a sewer in Kelcliffe. The proposed expenditure on waterworks is to lay mains in various parts of the district where a supply is not now obtainable. No opposition was made to the proposals of the Board.

Bridlington.—The Commissioners of the Bridlington Piers and Harbour have accepted the tender of Messrs. R. Moffat & Son, Paisley, conditionally, for carrying out the harbour improvement. This was the lowest tender, 3,644*l.*; the highest was 7,100*l.* The Harbour Commissioners resolved to re-deck the greater portion of the north pier.

Bradford.—It is stated that the legal questions affecting the title of property in Well-street, Bradford, which the Corporation last year agreed to sell to the Government as the site for the new post-office, have been satisfactorily settled, and it is understood that the purchase will be completed without further delay.

Rochester.—The Theatre Royal at Rochester, which is one of the oldest of the provincial theatres, is about to be demolished, after being used for performances for considerably over a century, the building having been disposed of for the purpose of the erection on its site of a Conservative Club for the City of Rochester.

CHURCH BUILDING NEWS.

Gateshead.—The Gateshead Church Extension Society contemplate building three new churches in Gateshead, viz.:—One to be dedicated to the Venerable Bede, Sunderland-road; St. Paul's, Low Teams; and Holy Trinity, High-street. The committee, being of the opinion that a good serviceable building, meeting in every respect the needs and requirements of the public worship of the Church of England, can be erected at a cost not exceeding 5*l.* per sitting, thought it would be expedient to endeavour to obtain such churches for the poor parishes of the Venerable Bede and St. Paul's, Low Teams, and therefore they invited several local architects to furnish plans for churches which, while not exceeding the cost of 5*l.* per sitting, should seat 500 persons, and be capable of being enlarged so as to seat 600. After a careful examination of the plans submitted, the committee selected that of Messrs. Oliver & Leeson as most suitable for the Church of the Venerable Bede. From tenders received, it is stated that the church can be erected for the sum of 2,550*l.* The church will comprise nave, seating 400 persons; north transept, seating 83 persons; south transept, seating 99 persons; choir, seating 42 persons,—total, 624 persons. There will also be an organ-chamber and a large vestry suitable for a parish-room. The contract for building this church has been let to Mr. Alexander Thompson, builder, Gateshead, and the work will be proceeded with very soon. The committee expect that in a few weeks they will be able to commence the erection of a somewhat similar building for the district of St. Paul's, Low Teams, plans for which are also being prepared by Messrs. Oliver & Leeson.

Chedzoy (Somerset).—The restoration of the chancel of the large and interesting Church of St. Mary the Virgin at Chedzoy, near Bridgwater, is to be commenced immediately after Easter, under the directions of Mr. Slingsby Stallwood, architect, Reading. The chancel possesses many interesting features of the thirteenth century, and some rich examples of Tudor and Jacobean woodwork, while the nave, as in many other Somerset churches, is extremely rich in carved fifteenth-century woodwork. The rood-screen still exists, though much mutilated, and this will be restored and surmounted by a rood of lofty proportions. The contract has been taken by Mr. Spiller, of Taunton.

Poynton.—The parish church of Poynton is now to have its tower and spire, and a contract has just been entered into between Messrs. Ellis & Hinchliffe, the masons and contractors, and Lord Vernon, the steeple being erected as a memorial to the late Baron. The design is by Messrs. Medland & Henry Taylor, architects, Manchester, and the work is now going on under their superintendence.

St. Helen's.—Holy Trinity Church, Parr-Mount, St. Helen's, was re-opened on the 29th ult., after undergoing extensive repairs and the addition of a chancel and vestry. The church was consecrated on February 26, 1857. After several recent attempts to put the church in a state of repair, which have failed (we read in the *Liverpool Post*) on account of the peculiar atmospheric influence affecting the material of which the building was constructed, it was resolved to thoroughly renovate it. This has been done. A new chancel and vestry have been added, a new heating apparatus has been put in the church, and an enclosing wall has been erected. The total cost will not be far short of 1,300*l.*

Desford. — St. Martin's Church, Desford, Leicester, has been enriched by the addition of a handsome pulpit, which is in Caen stone. The top contains three panels which are filled respectively with figures of our Lord, St. John, and St. Martin. The caps of the panels are supported by marble columns, and the whole is surmounted by a richly-carved cornice. The whole was executed by Messrs. Jones & Willis.

Pendleton. — St. Anne's Church, Brindle Heath, Pendleton, is being adorned with a reredos and arcading of oak, at the cost of Mr. C. J. Heywood, the eminent banker. The work is being executed by Mr. Thomas Scott, from the designs of Messrs. Medland & Henry Taylor.

Peckham. — The new Church of St. Mark, Peckham, which was consecrated on the 1st inst., has been built from the designs of Mr. C. Luck, architect, of Carlton-chambers, Regent-street. It consists of a nave and two aisles, the latter being formed by arches, supported by pillars of plain Bath stone. The floor is of concrete, and the chancel is paved with tiles. There are a vestry-room and organ-chamber on either side of the building, the exterior of which is of red brick with stone dressings. The contract was carried out by Mr. Manley, of Regent's-park, the amount of it being 7,266*l.*, and, with the cost of the hot-air heating apparatus, supplied by Mr. Grundy, and other charges, the whole expenditure will be about 8,000*l.*, and this provides 800 sittings. The seats are of deal, and the Communion-table, pulpit, and reading-desk of oak.

Society of Engineers.—At a meeting of the Society of Engineers held on Monday evening last, at the Westminster Town-hall, Mr. Arthur Rigg, president, in the chair, a paper on "An International System of Marine Course Signalling," by Captain W. B. Barker, U.S.A., was read.

STAINED GLASS.

Clitheroe.—A window in memory of the late Lord Justice Holker has been placed in Waddington Church, Clitheroe, by Lady Holker. The subject chosen is the giving of the Law. Moses is represented partially unveiled, having descended from the mountain with the Tables in his hands. Around him, in attitudes of reverence and fear, are placed the chiefs of Israel. The thunder and the lightnings and the terrible upheavings of nature which had betokened the special local presence of God have passed away, but the distant mountains and the still, awed expression of the people signify what has happened. The colouring of the window is rich. Messrs. Lavers, Westlake, & Co., of Endell-street, Bloomsbury, have the credit of executing this work.

Whitley.—The large west windows of Christ Church, Whitley, have recently been filled with painted glass, the cost of which has been defrayed by the munificence of an anonymous donor. The designing and execution of the work were entrusted to Lavers, Westlake, & Co., of Endell-street, London. The subjects of the windows are devoted to the Incarnation, and illustrate the earlier scenes in our Lord's life, together with the types which foreshadow them. There are three rows of figures in each window. In the central and upper rows of the window on the south side there are representations of the Annunciation, the Adoration of the Magi, and in the lower row appear the types predicting this event, the manifestation of Jehovah to Moses at the burning bush, and the visit of the Queen of Sheba to Solomon. On the north side the central figure is the Presentation of Christ in the Temple, and above it the Baptism of our Lord. In the lower series the Old Testament types are the presentation of Samuel to Eli, and the passage of the Israelites through the Red Sea. In the tracery there is a representation of the infant Saviour and the Virgin, with angels in adoration. The style of the details of the windows is that which prevailed in the 14th century.

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

March 21.—5,253, T. Fraser, Aberdeen, Fire-grates.—5,255, W. Tuffee, Gravesend, Coping Tile.—5,265, D. Walker, London, Chimney-top.

March 22.—5,281, J. Friend, Exeter, Water-waste Preventer.—5,318, H. Pataky, Berlin, fixing Scaffolding, &c. Com. by L. Muth, Berlin.—5,323, R. Steadman, Willesden, and W. E. Edwards, Isleworth, Fire-places.—5,327, J. Sibbald and W. Kinnes, Dundee, Water-closets.—5,336, H. Hardy, London, Heating-stoves.

March 25.—5,384, J. E. Russell, Spindon, Kitchen Ranges.—5,396, T. Thornton, Bury, Floor-cramp.

March 26.—5,466, W. Bell, Carlisle, Flushing and Ventilating Drains.—5,480, J. Adams, Liverpool, Ventilation, &c.—5,489, T. Dugard, London, Grate-bars. Com. by J. Nailer, San Francisco, U.S.A.—5,494, D. Hynd, Dundee, Flushing Water-closets.

March 27.—5,525, T. C. Morgan, Hay, Fastening Sash-windows.—5,548, M. Syer, London, Water-Closets.—5,563, J. B. Petter, Yeovil, Stoves and Fire-places.—5,568, A. M. Clark, London, Fire-proofing the Joists, &c., of Buildings. Com. by W. H. Dolman, New York, U.S.A.

March 28.—5,592, A. Steenberg, Copenhagen, Roof Covering. Com. by C. Schourup, Viborg, Denmark.—5,594, J. Grundy, London, Warm-air Fire-grate.—5,596, C. E. Harton, Ashton-on-Mersey, Fenders.

March 29.—5,633, C. Winn, Birmingham, Flushing Closets, Urinals, &c.—5,644, W. Unsworth, Liverpool, Window-blinds, &c.—5,675, W. Sanderson, Durham, Fastening for Doors, Gates, and Casements.—5,676, H. W. Buchan, Edinburgh, Water-closets.—5,680, J. Pinchen, Market Lavington, Glazing.

March 31.—5,693, G. Burnell, Bristol, Inodorous Privy.—5,696, W. P. Thompson, Liverpool, Waterproof Flooring. Com. by A. Damenau and A. Cassard, Brussels.—5,706, W. M. Simons, Nottingham, Roller-blind Furniture.—5,742, F. E. Street, London, Building in Concrete.—5,743, J. M. B. Baker, London, Deodorising Apparatus for Water-closets, &c.

April 1.—5,762, W. Baird, Dublin, Sanitary Apparatus.—5,763, R. Cox, Bristol, Ventilating Gas Stove.—5,785, J. Kell, Durham, Chimney-top and Ventilator.

April 2.—5,811, W. Devoll, Erdington, Flushing Water-closets, Drains, and Sewers.—5,824, E. De Pass, London, Fasteners for Curtain Cornices. Com. by W. Zung, Frankfort.—5,845, E. S. Romilly, London, Chimney-pot.

April 3.—5,870, J. R. Meilie, London, Disinfecting Water-closets. Com. by T. S. de Deinheim,

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

Brochocki.—5,873, J. Barnes, Manchester, Damp-proof Material for Lining Walls, &c.—5,880, W. Moyes, J. Moyes, and W. Moyes, Pollockshields, Water-closet Basins.—5,881, T. Robb, Glasgow, Connecting together Tiles and Wooden Blocks for Paving, Flooring, &c.—5,888, R. A. Lowe, Chislehurst, Sash-windows.—5,889, W. Meakin, London, Window-sashes.—5,892, J. Thompson, London, and J. Hatfield, Kew, Construction and Hanging of Doors.

SPECIFICATIONS ACCEPTED.*

March 25.—212, G. W. Webb, Reading, Ventilation.—3,988, T. Whitehead, Liverpool, Chimney-tops, &c.

March 28.—3,913, W. Devoll, Erdington, Flushing Water-closets, Drains, and Sewers.

April 1.—2,578, S. Turner, Barrow Haven, Ridge Tile for Ventilating.

April 4.—457, J. Jones, Johnstown, Bricks for Facing Buildings, Walls, &c.—2,576, W. Crook, Salisbury, Fire-places, Grates, Stoves, &c.

NOTICES TO PROCEED

Have been given on the Dates first named.

March 28.—5,513, R. Evans, London, Flues, &c., for High Dwellings (Nov. 24, '83).—5,526, H. Hancock, London, Fastenings for Doors and Windows (Nov. 26, '83).

April 4.—5,585, W. J. Penny, London, Window-sashes, &c. (Nov. 30, '83.)

ABRIDGMENTS OF SPECIFICATIONS

Published during the Week ending March 29, 1884.

3,109, E. G. Banner, London, Construction of Pavements and Roadways. (June 22, '83, price 10d.)

The kerbs are made of blocks of concrete, &c., and passages are made therein for gas-pipes, telegraph-wires, &c.

3,788, A. J. Boult, London, Chimney Tops or Cowls. Com. by J. Wüstner, Annecy, France. (Aug. 2, '83, 2d.)

Above the chimney-top is a cover, supporting on a central pivot an inclined plate with a vane above, which causes the plate to present its top to the wind, allowing the smoke, &c., to escape behind. (*Pro. Pro.*)

3,805, J. B. Petter, Yeovil, Ovens for Cooking-ranges. (Aug. 3, '83, 2d.)

The doors are formed of sheets of wire gauze set in the frames. (*Pro. Pro.*)

3,848, W. Clark, London, Fire-places and Fire-backs. Com. by J. H. Burnam, Fayetteville, U.S.A. (Aug. 7, '83, 6d.)

To heat two adjoining rooms by one fire the fire-place is made right through the intervening wall and a curved metallic fire-back to the fire-place projects into the one room and heats it while the fire itself heats the other.

3,852, G. Dreghorn, Inverness, Venetian Blinds. (Aug. 8, '83, 2d.)

The ordinary tapes are dispensed with, and the laths are supported by links and bands of metal. (*Pro. Pro.*)

3,941, H. J. Haddan, London, Artificial Stone. Com. by J. Hemmerling, Düsseldorf. (Aug. 14, '83. 2d.)

These bricks, blocks, &c., are made of metallic oxide, soluble glass, furnace slag, and cement and slag sand or silicious sand, in moulds, and are afterwards twice impregnated with soluble glass.

Published during the week ending April 5, 1884.

3,887, J. Finney, Bocking, Attaching Door-knobs to their Spindles, Aug. 10, '83, 2d.

When the knob is screwed on the spindle a pin therein enters one of a series of holes in the flange of the collar. (*Pro. Pro.*)

394, L. Stiebel, London, Construction of Roadways, Aug. 14, '83, 2d.

A layer of hot powdered asphalte is placed on the surface of the ground, which may have been previously prepared with concrete, and broken stones are rolled in level with the asphalte. (*Pro. Pro.*)

4,094, W. Thompson, Wexford, Walls for Fences, Buildings, &c., Aug. 24, '83, 6d.

These are made of corrugated concrete, and the corrugations are vertical.

MEETINGS.

WEDNESDAY, APRIL 16.

British Archæological Association.—(1) Conclusion of the Rev. S. M. Mayhew's paper on "Tenby and St. David's Cathedral." (2) Dr. Wake Smart on "Antiquarian Researches at Nursling and its locality." 8 p.m.

Edinburgh Architectural Association.—Dr. R. M. Ferguson on "Electric House-Fittings."

Royal Meteorological Society.—(1) The Hon. Ralph Abercrombie "On the Origin and Course of the Squall which capsized H.M.S. *Eurydice*, March 24, 1878." (2) Captain J. W. C. Martyr on "The Weather Forecasts for October, November, and December, 1883." (3) Mr. William F. Stanley "On Certain Effects which may have been produced in the Atmosphere by Floating Particles of Volcanic Matter from the Eruptions of Krakatoa and Mount St. Augustin." 7 p.m.

THURSDAY, APRIL 17.

Chemical Society.—8 p.m.

FRIDAY, APRIL 18.

Architectural Association.—Members' *Soirée*, at Westminster Town-hall, Caxton-street, Victoria-street. 7.30 p.m.

SATURDAY, APRIL 19.

Architectural Association.—Visit to Houses in Kensington Court (Mr. J. J. Stevenson, architect). 3 p.m.

Edinburgh Architectural Association.—Visit to Hallyards Castle and Kirkliston.

* Open to public inspection for two months from the dates named.

Miscellanea.

Yorkshire Association of Medical Officers of Health.—A meeting of this Association was held on the 28th ult., in Leeds, when Dr. Goldie (Medical Officer of Health for Leeds) read a paper on "Our Epidemic Diseases, and How they are Spread." He was of opinion that there were certain climatic conditions during certain years which either assisted in creating some of the infectious diseases, or, at all events, were so favourable to their spread and active vitality as to signalise them as epidemic years. He would quote the year 1872, immediately preceding his acceptance of office in that town. The death-rate from the seven principal zymotic diseases amounted to 6·3 per 1,000, and the year 1870 showed a death-rate from the same diseases of 6·6 per 1,000. Contrast either of these two years with that of 1877, in which the death-rate from those seven diseases fell as low as 2·7 per 1,000, and they must be forced to a suspicion that there was some other cause for this sudden and marked decline in the death-rate than the mere checking of infection from anything that he could accomplish. Those other causes and conditions must be known to them before they could combat with them, but once they became acquainted with those conditions which were most favourable to the active existence of infectious diseases, then they could place themselves on the most favourable footing to meet those epidemic influences. At present those influences were beyond their ken, but there were others which were quite easily within. After some discussion Dr. W. K. Giddings, Medical Officer of Health for Calverley, read a paper on some of the results of ten years' sanitary work in Calverley. He said that the sanitary work of Calverley had been of a very humble kind. They did not treat their sewage in any way, except to plenty of fresh air; they did no scavenging; they had no public or even recognised slaughter-houses. The cost of their entire staff of health officers was 18*l.* per year.

Commercial Failures.—The number of failures in England and Wales gazetted during the week ending Saturday, April 5th, was 63. The number in the corresponding week of last year was 211, showing a decrease of 148, being a net decrease in 1884, to date, of 1,825. The failures were distributed amongst the following trades, and, for comparison, we give the number in each in the corresponding weeks in 1882 and 1883:—

	1884.	1883.	1882.
Building Trades	8	20	20
Chemists and Druggists	—	4	2
Coal and Mining Trades	2	7	5
Corn and Cattle	2	3	8
Drapery Trades	7	12	16
Earthenware Trades	1	1	1
Farmers	5	13	14
Furniture and Upholstery Trades	—	1	6
Grocery and Provision Trades	12	37	49
Hardware and Metal Trades	—	11	5
Iron and Steel Trades	2	6	7
Jewelry and Fancy Trades	3	6	5
Leather and Coach Trades	5	15	14
Merchants, Brokers, and Agents	8	22	18
Printing and Stationery Trades	—	1	7
Wine, Spirit, and Beer Trades	3	27	27
Miscellaneous	5	25	22
Totals for England and Wales	63	211	226
Scotland	22	22	16
Ireland	1	2	5
Totals for United Kingdom	86	235	247

—*Kemp's Mercantile Gazette.*

The Exhibition Building of '51.—The eighth and last of a course of lectures on "General Engineering Construction," by Mr. J. W. Wilson, principal of the Crystal Palace School of Practical Engineering, was delivered on the evening of the 3rd inst., in the reading-room of the Society of Engineers, Victoria-street, Westminster. The lecturer commenced by giving a short history of the origin of the Exhibition of 1851, and the manner in which the novel form of structure then adopted was arrived at. He then proceeded to describe the general nature of the building, and the way in which the difficulties of construction were surmounted, giving also statistics as to the enormous amount of material employed. He then described the removal of the Hyde Park building to Sydenham, the manner in which it was altered to suit the new requirements of the position, adding information as to the arrangement of the water-towers and the fountains, together with a description of the various engines employed for the purpose of pumping the water, concluding with some general remarks upon the advantages and disadvantages of such structures, together with information upon the cost of maintenance.

Legislation on Dairies and Milkshops.—The petition of the Council of the National Association for the Promotion of Social Science, which has been presented to Parliament, to the Privy Council, and to the Local Government Board, contains some very urgent reasons why the control of dairies and milkshops should be vested in the local sanitary authorities, and not in the veterinary authorities as heretofore. The petition shows that, with few exceptions, the latter possess no sanitary organisation or machinery whatever for the inspection of such places; that the Orders of Council, framed under the Contagious Diseases (Animals) Act of 1878, have remained to a large extent a dead letter; that during the last twelve years at least fifty-three epidemics of typhoid fever, seventeen of scarlatina, and twelve of diphtheria have been due to the drinking of infected milk alone, causing suffering and misery to some thousands of people, and killing nearly 600 persons. We need not say we fully sympathise with the objects of the memorial. The preservation of milk from infection has so obvious a relation to the health of human beings that the taking of precautions against the possibility of infection should undoubtedly be vested in those who are guardians of the public health.—*Lancet.*

The Empire Theatre, Leicester-square. This new theatre, which occupies the site of the old Savile House in Leicester-square, is to be opened on Monday next. The building was formerly called the Pandora, and was erected from the designs of Mr. Thomas Verity, but never opened. We gave a description of the building a year ago (see *Builder*, March 3, 1883), and may now add that the scagliola enrichments are by Messrs. Bellman & Ivey, of Wigmore-street. The balustrade to principal stairs from main entrance is very handsome and massive, with capping in Genoa green, red Devonshire die, and brown Belgian base and plinth. This is continued up the stairs from dress-circle to foyer as a dado to same section and colours, and is repeated round the foyer. The foyer has an enriched domed ceiling by Jackson & Sons. This comes down on a moulded and polished entablature of scagliola in Castell and red Devon. Supporting this entablature are twelve columns of red Devon in pairs, with enriched capitals and trusses over moulded bases and plinths of Castell.

Cyanite.—This material for coating wood as a preservative against fire, which was brought before the notice of the Society of Arts some little time back, seems likely to prove of some value in that respect. It was the subject of an experiment on rather a large scale at Whitehall-place the week before last, when some wooden structures coated with the material were fired, and showed very satisfactory results. Experiments upon smaller specimens of cyanited wood we have found to vary rather in their results; sometimes the wood would burn after considerable immersion in flame, but it always showed a considerable power of resisting combustion. A point in favour of the method is that the cyanite sinks into the substance of the wood, instead of forming a mere coating. As to how long the saturated wood will retain its fire-resisting properties, we yet want the only reliable means of proof,—time.

Dulwich College.—A correspondent of the *Metropolitan* says that it is contemplation to set apart about 70 acres of the college land,—in the centre of Dulwich village, and just within the limit of the London four-mile cab radius,—for a public park and recreation ground for the free use and enjoyment of the public for ever. There may be difficulty under the scheme in the gratuitous grant of this enormous boon, but there is little doubt that the Metropolitan Board of Works will step in, and, at a nominal cost, acquire the land for so laudable a purpose. Metropolitan ratepayers may reasonably expect the Board to co-operate with the Estates Governors in providing another open space for the rapidly increasing population of South London.

Overhead Wires.—From a report to the Chelsea Vestry by Mr. Chrossop, chairman of the Electric Lighting Committee, and Mr. Stayton, C.E., Surveyor to the Vestry, we learn that the advisers to the Chelsea Vestry are prepared to recommend the *limited* use of overhead wires for telephonic and telegraphic purposes. They urge that the difference of cost, 350*l.* per mile for underground laying, as against 10*l.* per mile for overhead laying, is too serious a point, commercially, to be entirely ignored.

British Archæological Association.—At the meeting of this association, on the 2nd inst., the chair was occupied by Mr. Thos. Morgan, F.S.A. On the motion of Mr. G. R. Wright, F.S.A., seconded by the Chairman, a vote of condolence with the Queen and the Royal Family on the death of the Duke of Albany was unanimously agreed to. Mr. Loftus Brock, F.S.A., described a large number of examples of black Greek and Etruscan pottery, without patterns, remarkable for the beauty of their forms. The Rev. S. M. Mayhew exhibited a fine series of articles of early date found in recent excavations in the City. Among these were some remarkable Norman jugs, in perfect condition, found on part of the site of the priory of the Holy Trinity, Aldgate, a site which has hitherto been less opened of late years than almost any other part of London. An encaustic paving tile was also found, of fourteenth-century date, and a boss modelled in hard cement of the sixteenth century, a relic doubtless of some domestic building erected on the site after the dissolution. It contains the device of an eagle pecking at a skull. A paper was then read in part on "Tenby and St. Davids," by the Rev. S. M. Mayhew, the subject having reference to the locality to be visited during the coming congress. The Flemish settlements at Tenby, and the preaching of the Crusade there by Archbishop Baldwin, were graphically described, but the completion of the paper was deferred owing to the illness of the author. A paper was then read by Mr. W. de Gray Birch, F.S.A., in the absence of its author, Mr. C. Roach Smith, F.S.A., on the "Embankment of Rivers," &c., in Roman times, with special reference to the Thames.

London Water Supply.—Last week a conference of the representatives of the local boards outside the City of London,—bodies representing at least nine-tenths of the inhabitants of the metropolis,—assembled at the Kensington Town-hall, to consider the measures which could be taken to protect the public against the unjust charges of the water companies. Dr. Richardson presided. A long discussion arose on a motion stating that in the opinion of the Conference it is imperative that the question of the water supply should be dealt with this year, and calling on the Government, as the only authority that can deal with it, to come to the rescue of the metropolis in this matter without further delay. It was urged that this was not a practical resolution, and eventually it was negatived; when Mr. Squires, of Camberwell, moved that the local authorities should be requested to give their support to Mr. Torrens's Bill. Mr. Morton, of Wandsworth, seconded this as a practical means of giving the ratepayers immediate relief from the exactions of the water companies. Mr. Mote proposed an amendment to the effect that definite words should be introduced into the Bill to secure the application of the principle of "net annual rateable value" to the assessments of the water companies, and to make the rate-books of the local authorities the proof of the rateable value of the houses supplied with water. It was agreed eventually to support Mr. Torrens's measure, with an expression of opinion that the "net annual rateable value" of tenements should be decided by the rate-books.

The Housing of the Poor in Glasgow.—At a meeting of the Glasgow Town Council on the 4th inst. Mr. Shaw said it was well known that a Royal Commission had been appointed to take evidence regarding the housing of the poor. He understood they were taking evidence in private, and he thought that Glasgow should make some representation in regard to this very important question. He gave notice that at the next meeting he should move that the convener of the Committee of the City Improvement Trust and Mr. Carrick be appointed to draw up a formal report regarding the working of the scheme in Glasgow.

New Laundry, Paddington Workhouse. At the meeting of the Board of Guardians on the 2nd inst. the Laundry Building Committee recommended that Mr. Harston be asked to prepare plans in accordance with the terms of his letter of the 13th ult. This was agreed to.

The Reichstag Building at Berlin.—It is intended to lay the foundation-stone on the 10th of May, that day being the thirteenth anniversary of the peace of Frankfort. It is not yet finally decided whether the occasion will be one of great ceremonial importance.

Opening of a New Station on the South-Western Railway.—The Earlsfield Station, situated between Clapham Junction and Wimbledon, was last week opened for traffic. It is intended to serve a new locality in the neighbourhood of Garrett-lane, where building has for some time past been going forward at a rapid rate, and where there is now a large population. The opening of the station is in connexion with the doubling of the company's main line between Clapham Junction and Wimbledon, which has been in progress during the last three years, and is now completed. From a short distance south of Clapham Junction to near Wandsworth Prison the line is in cutting, and thence runs on an embankment to a short distance from Wimbledon, when it again proceeds through a cutting. The line crosses Garrett-lane at a considerable elevation. The original bridge, which carried it over this roadway, was a brick structure, the abutments of which limited the carriage way under it to less than 20 ft. in width. This bridge has been taken down, and replaced by two iron girder bridges, which now carry the four lines, the carriage-way in Garrett-lane being doubled in width. A short distance further on, in the direction of Wimbledon, a costly iron girder bridge has been constructed over the River Wandle. Nearer Wimbledon, again, the old line crossed the Merton and Wandsworth high road on the level. In the carrying out of the new works this road has been diverted, and the railway, as widened, now passes under it. The booking-offices, waiting-rooms, and the various other offices are on the north side, the south or down platform being reached by an arched passenger-way, lined with white enamelled brick, beneath the railway. The whole of the station buildings have been carried out by Messrs. Perry & Co., of Bow, under the superintendence of Mr. Jacomb, the company's engineer. The probability is that there will be a large traffic to and from the station in consequence of the great rate at which building is proceeding both in Earlsfield and Garrett Park, which immediately adjoins it. On the last-named estate several new streets have been laid out, and upwards of 400 houses have been erected.

Enlargement of Covent Garden Flower Market.—A few years ago the Duke of Bedford made considerable additions to the wholesale flower market at Covent Garden by the erection of spacious new buildings having their principal elevation and entrance in Wellington-street. Notwithstanding that the increased space which these new buildings provided was more than double the previous area, it appears that the market is still too small for the wholesale flower trade, and it is about to be further enlarged by the erection of additional new buildings, which will almost double its present area. For this purpose several houses and business premises on the north side of Tavistock-street are at present in course of demolition to clear the site for the intended new market buildings. The enlarged market will have a frontage to Tavistock-street of about 100 ft. in length, mainly uniform with the existing Wellington-street elevation, Messrs. Findlater's premises at the angle of the two streets alone interposing between the continuance of the two frontages.

Value of Building Sites near the Victoria Docks.—There appears at present to be an active demand for building sites for the erection of cottage property in the neighbourhood of the Victoria Docks. Last week Messrs. Baker & Sons offered for sale at the Swan Hotel, Stratford, 111 plots of freehold building land, being the first portion of the property known as the Victoria Docks Estate, belonging to the National Standard Land Company. It was stated that the property is situated within five minutes' walk of the Custom House Station of the Great Eastern Railway. There was a very numerous attendance of buyers at the sale. Of the entire 111 lots submitted, fourteen were shop lots, and these were all sold at prices ranging from 100*l.* to 120*l.* each. The whole of the cottage sites also found purchasers at prices varying from 30*l.* to 40*l.* each. The entire proceeds of the sale amounted to a little more than 5,000*l.*

Female School of Art, 43, Queen-square, W.C.—The following City companies have contributed towards the "Extension Fund" of this school:—The Drapers', 25*l.*; the Clothworkers', 100*l.*; the Skinners', 105*l.*

Improvements in Bouverie-street, Fleet-street.—The widening of Bouverie-street at its junction with Fleet-street is about to be carried out by the Corporation. The improvement involves the taking down of the premises on the west side at the corner of Fleet-street and Bouverie-street, and these are now in course of demolition preparatory to the improvement being effected. The removal of these premises will admit of Bouverie-street, at the Fleet-street end, being widened so as to secure a carriage-way of about 20 ft. in width, instead of 8 ft. as at present, with footpaths of proportionate width on each side. The improvement will thus give direct carriage access from Fleet-street to the Thames Embankment, *viâ* one of the new streets which the Corporation have just formed between Tudor-street and the Embankment. It may be added that the proprietors of the *Daily News* are now erecting enlarged buildings on the site of their old premises on the east side of Bouverie-street, which are at present in course of demolition, as well as adjoining premises, which have been purchased for the extensions. The new buildings will have a frontage to Bouverie-street of upwards of 100 ft. in length. Mr. T. Chatfeild Clarke is, we believe, the architect.

Alhambra Theatre.—This theatre, which has been closed for alterations and additions for the last three weeks, is to re-open on Saturday next. The principal alterations which have been made have been the construction of a new and broader staircase in concrete to give access to the dress-circle and first tier of boxes, and a new entrance to the pit stalls. The screens on either side of the proscenium have been removed and the opening increased to a clear width of 38 ft. Messrs. J. Shoolbred & Co. were selected after competition to be the contractors, and they have carried out the whole of the works, constructional and decorative, under the superintendence of Messrs. Perry & Reed, the architects to the Company.

The Accident Insurance Company.—After an association with 7, Bank-buildings, Lothbury, for over thirty-five years, the business of the Accident Insurance Company, in consequence of the expiration of the old lease, and the desirability of obtaining more expanding room, has been removed to St. Swithin's House, 10, St. Swithin's lane, which has recently been built by Mr. William Brass, from the designs of Mr. W. Wimble, architect.

TENDERS.

For shops for Messrs. Sagar, at Blackburn. Messrs. Myres, Veevers, & Myres, architects, Preston and Westminster. Quantities by the architects:—

George Fielding & Sons, Blackburn.	£9,609 1 4
John Walmesley, Preston	7,073 8 10
Robert Brownley, Chorley	6,520 6 0
James Parker, Daisyfield, near Blackburn	6,227 5 0
W. Stone & Sons, Blackburn	6,100 0 0
William Ramsbottom & Son, Accrington	6,030 0 0
Robert Ibbotson, Blackburn	5,892 10 0
James Whittaker, Blackburn	5,799 0 0
George Keeley, Blackburn	5,729 0 0
John Livesey, Blackburn	5,686 0 0
Kenyon & Moulding, Blackburn	5,662 0 0
W. & T. Arkwright, Blackburn	5,600 0 0
Thomas Higson & Sons, Blackburn*.	5,585 0 0
Thomas Craven, Blackburn	5,459 0 0
James Byrom, jun., Blackburn	5,387 13 0

* Accepted.

For additions and alterations, Nos. 3, 4, 5, and 6, Wilton-road, Pimlico. Mr. George Edwards, architect. Quantities by Mr. Henry Lovegrove:—

Green	£1,698 0 0
Reading	1,588 0 0
Nightingale	1,580 0 0
Scrivener & Co.	1,459 0 0
Martin, Wells, & Co.	1,360 0 0
Scharien & Williams	1,280 0 0
Stimpson & Co. (accepted)	1,280 0 0

For the erection of stable and coachhouse at Hampstead. Messrs. Tunley & Co., architects. Quantities by Mr. Henry Lovegrove:—

		With Extra Room.
Sabey & Son	£898	£938
Burford & Son	870	907
Tarrant & Son	856	887
Holliday & Greenwood	—	877
Outhwaite & Son	814	843

For Sileby Brewery, new malting, &c.:—

Dennett & Ingle, Nottingham	£2,145 0 0
Wright & Co., Leicester	2,128 0 0
Hewitt, Leicester	1,794 0 0
Bass, Leicester	1,772 0 0
Black, Barrow	1,720 0 0

For alterations, &c., to four houses, Muswell-road, Hornsey, for Mr. Sydney Smith. Mr. J. W. Stevens, architect and surveyor, 1, Dyers'-buildings, Holborn:—

Steed	£120 15 0
Carter & Son (accepted)	81 6 0

For new wing and alterations at Frognal Rise, Hampstead (first section). Mr. Marshall N. Inman, architect, No. 7, Bedford-row:—

G. Lamb	£790	0	0
Benstead & Sons	629	0	0
Simpson & Son	621	0	0
W. Sayers (accepted)	577	0	0

For alterations to Morgan's Farm, Elm, near Frome, for Mr. Wm. Strachey:—

J. Bird, Radstock (accepted)	£268	16	0

For new offices at Radstock, Somerset, for Messrs. F. Bird & Co.:—

J. Bird (accepted)	£380	0	0

For the erection of four shops in the Woodford-road, Forest Gate, Essex, for Mr. John Jones. Mr. James F. Wesley, architect, Romford-road, Forest Gate:—

Dyer & Sons	£2,988	0	0
J. H. Johnson	2,937	0	0
M. A. Palmer & Sons	2,875	0	0
J. Walker	2,850	0	0
W. Shurmur	2,675	0	0
S. L. Stone	2,651	0	0
J. A. Taylor	2,599	0	0
J. Holland	2,550	0	0
A. Nicholls	2,495	0	0
W. Baney (accepted)	2,360	0	0

For the erection of new offices, &c., at Oak-lane, Limehouse, for Messrs. G. Hendry & Co. Mr. James F. Wesley, architect:—

J. H. Johnson	£425	0	0
J. Holland	398	0	0
M. A. Palmer & Sons	389	10	0
J. Walker	389	0	0
S. Salt	374	10	0
B. E. Reed (accepted)	345	0	0

For the restoration of Kinnersley Church, Salop. Mr. Joseph Farmer, architect:—

Paterson & Sons, Wellington	£617	17	6
C. T. Smith, Broseley	597	0	0
E. Whittingham, Newport	555	0	0
R. Yates, Shifnal	470	0	0
Parker	428	0	0

For house at Chelsea. Mr. W. H. Seth-Smith, architect, 46, Lincoln's Inn-fields. Quantities by Mr. John Leaning, Poultry:—

		Old Materials.
Tongue	£3,362	£7
Tarrant & Son	3,170	10
Read	3,105	5
Marriage	3,120	75
Hughes & Davis	3,010	17
E. Good	2,940	10

For West Cliff Church, Whitby, including oak seating. Mr. R. J. Johnson, architect, Newcastle:—

Simpson & Malone, Hull	£19,626	16	6
J. White, Whitby	19,518	4	6
J. Johnson & Sons, Middlesbrough	18,748	8	0
W. Langdale & Sons, Whitby	17,516	7	0
J. Kyle, Barnard Castle	16,803	17	4
J. & W. Banland, Bradford	16,768	0	0
R. Sanderson, Durham	16,184	0	0
J. Bentley, Leeds	15,783	2	11
W. Scott & Son, Sunderland	15,653	0	6
R. Brown, Whitby	15,039	12	3
S. B. Burton, Newcastle	14,606	0	0
J. H. Thorpe, Leeds	14,593	5	0
T. Wood, Pickering	14,393	5	0
W. Hodgson, Malton	14,093	18	6
J. Padbury & Sons, Scarborough*	13,937	10	7
S. Clark, Parkstone	13,673	0	0
Exclusive of Oak Seating.			
B. Brelsford, Leeds	£16,949	16	0
T. Dickinson, Saltburn	13,438	0	0

*Accepted.

For the erection of two houses in Grove-road, and one in Bridge-road, Grays Thurrock, Essex, for Mr. Jas. Seabrook. Mr. E. Clerk Allam, architect, Romford:—

F. Golden, Grays (accepted)	£700	0	0

For laying down new granite carriageways and York stone footways in the streets embraced in the Little Coram-street, Bloomsbury (Artisans' Dwellings) scheme, for the Metropolitan Board of Works. Sir J. W. Bazalgette, engineer:—

Mowlem & Co.	£1,638	0	0
Turner	1,575	0	0
Griffiths	1,447	0	0
Nowell & Robson (accepted)	1,298	0	0

For alterations and sanitary works at the workhouse, Tanner-street, Bermondsey, for the Guardians of the St. Olave's Union. Mr. Geo. Elkington, architect:—

Bargman	£468	0	0
Bullers	450	0	0
Smith & Barnes	385	0	0
Emmett	227	10	0

Accepted for the erection of the new Town-hall and Post-office, Kirkwall, N.B.:—

Samuel Baikie, Kirkwall	£3,993	0	0

For the restoration of Great Yeldham Church. Mr. Fred. Chancellor, architect, Chelmsford:—

		Extra for Oak Roof to Nave.
Grimwood & Son	£1,061 10	£118 0
Brown & Co.	1,055 0	160 0
Mason & Son	1,025 5	76 0
Letch	982 0	155 0
Grimes	970 9	111 0

For proposed detached villa, Bowes-road, for Mr. A. D. Fraser. Mr. J. W. Stevens, architect and surveyor, 1, Dyers'-buildings, Holborn:—

Holt & Garlick	£2,549	19	7
Knight	1,450	0	0
Brown & Sweetland	1,430	0	0
T. W. Smith & Son	1,359	0	0
Newby	1,300	0	0
Fairhead	1,273	0	0
Life	1,265	16	8
Tibbitts (too late)	1,249	0	0
Pryor	1,150	0	0
Kerry	1,150	0	0
Read	1,147	0	0
Johnston	1,091	0	0

For the enlargement of Archdeacon Cambridge's Schools, Twickenham. Messrs. George Lansdown & Harriss, architects, Warwick-street, Charing-cross:—

T. J. Messom	£1,717	0	0
H. & E. Lea	1,627	0	0
Wm. Collings	1,620	0	0
F. Sims	1,575	0	0
J. & P. Hermon	1,530	0	0
W. R. Wood	1,467	0	0

For painting and repairs to house at Denmark-hill. Messrs. George Lansdown & Harriss, architects:—

W. Bartholomew	£391	11	7
Hall, Bedall, & Co.	288	0	0
H. & E. Lea	252	0	0

Special Notice.—Lists of tenders frequently reach us too late for insertion. They should be delivered at our office, 46, Catherine-street, Strand, W.C., not later than four p.m. on Thursdays.

TO CORRESPONDENTS.

F. R. W.—E. R. M. (drawing received).—H. P. D.—F. E. (we cannot consider your letter as one written "solely on public grounds").—A. N. (there was nothing in the letter you refer to which could prejudice you, and we cannot go into a controversy of the kind).—E. L. E.

Correspondents should address the Editor, and *not* the Publisher, except in cases of business.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

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SPECIAL.—ALTERATIONS in STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same, must reach the Office before TEN o'clock on WEDNESDAY mornings.

PERSONS Advertising in "The Builder," may have *Replies addressed to the Office*, 46, Catherine-street, Covent-garden, W.C. *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

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"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, PREPAID. To countries within the Postal Union, 26s. per annum. Remittances payable to DOUGLAS FOURDRINIER, Publisher, 46, Catherine-street, W.C.

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Corsham Down,
And Farleigh Down.
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Is the Best for Use in all Exposed Positions, being a well-known and tried Weather Stone.
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[ADVT.

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